Давайте проектировать UI правильно

Александр Зимин · Mobius 2017

badoo

badoo tech

badoo_tech

Александр Зимин

Software Engineer в Badoo, London

@ziminalex @azimin

badoo_tech

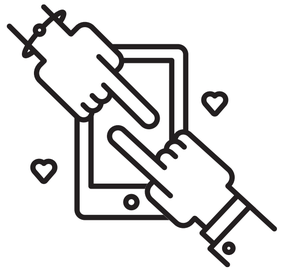
О нас badoo

350m

Сообщений в день

350m

Зарегистрированных пользователей



60m

Ежемесячная аудитория

300k

Регистраций в день

О нас badoo

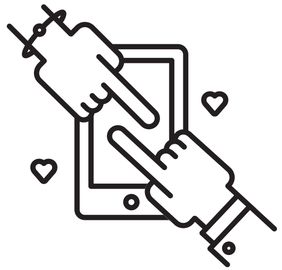
badoo_tech

350m

Сообщений в день

350m

Зарегистрированных пользователей



60m

Ежемесячная аудитория

300k

Регистраций в день

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~450

badoo

87

Product

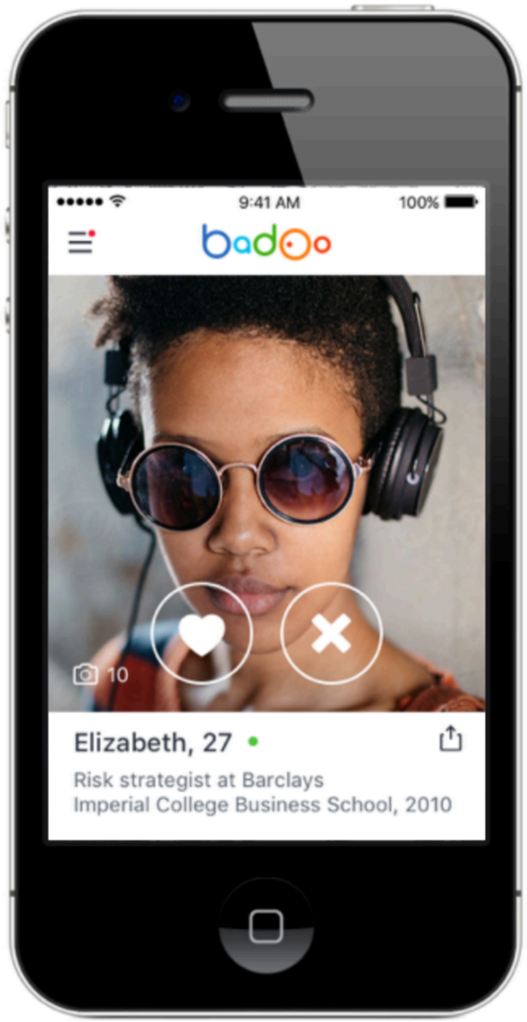
12 Design

250

Engineering

39 iOS/Android

2009



2014

2017

Акт 1

Осознание проблемы

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Stop it.

В Badoo

Мы – ниндзя

99.99% crash free

300 feature CPW

Мы должны создавать лучший в мире продукт

Дизайнеры готовы

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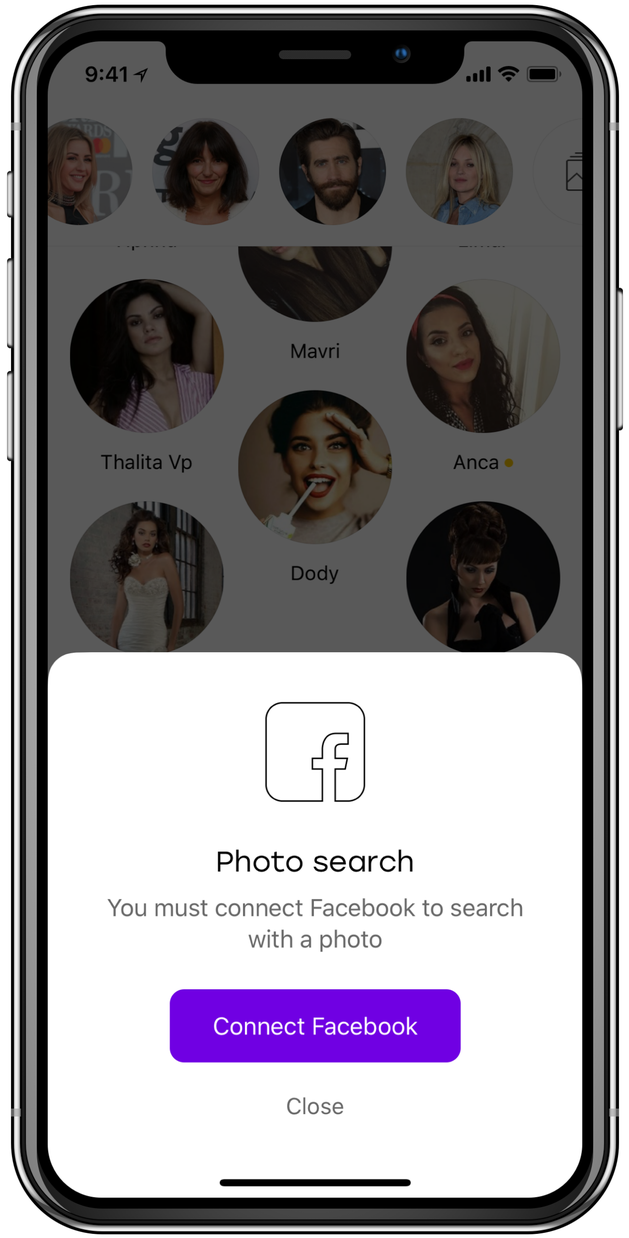
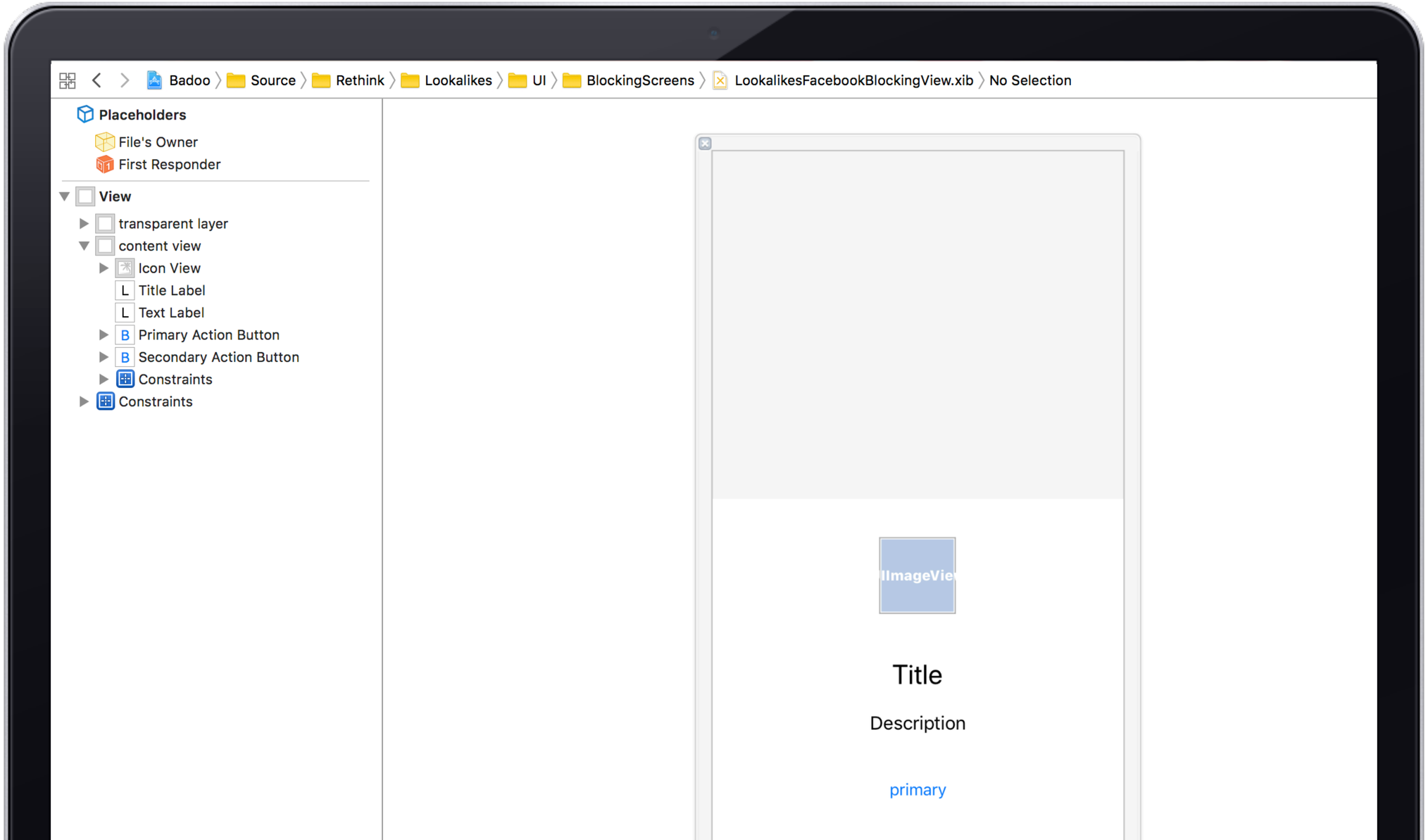

9:41
Mavri
Thalita Vp
Anca
Dody
Photo search
You must connect Facebook to search with a photo
Connect Facebook
Close

Xib или В коде

badoo_tech



Плюсы

- **Вроде** быстро и работает

Минусы

1. Долгая компиляция

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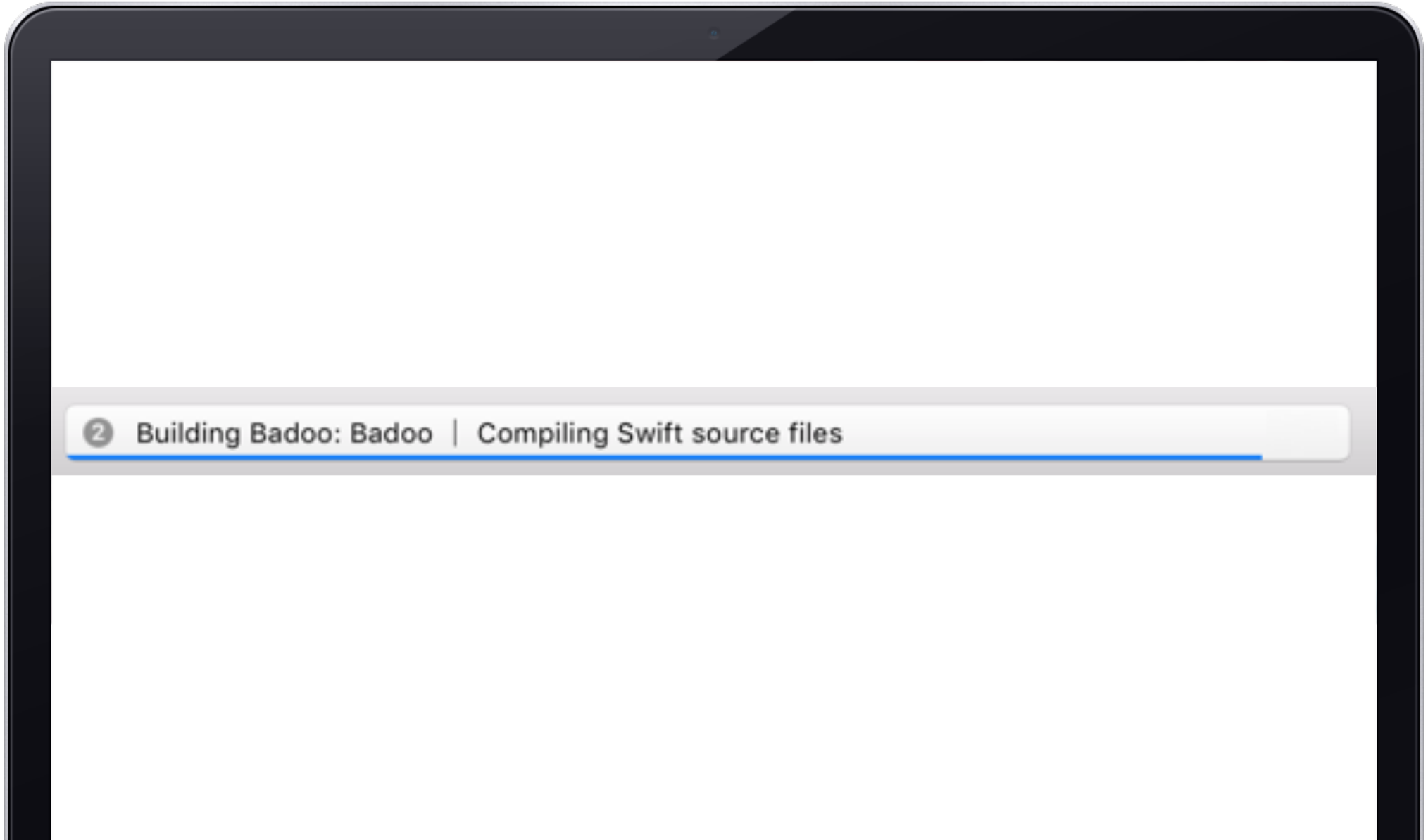
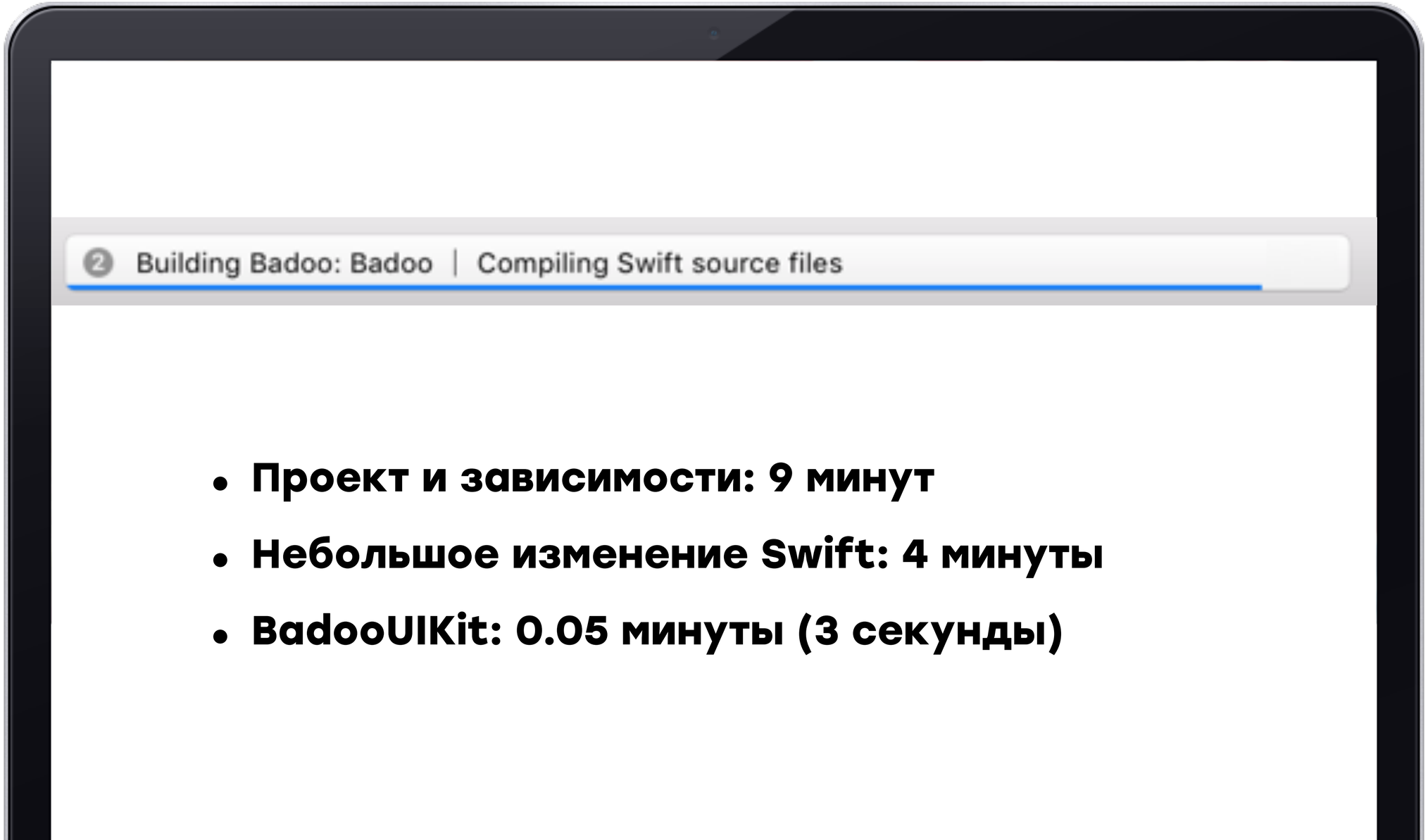
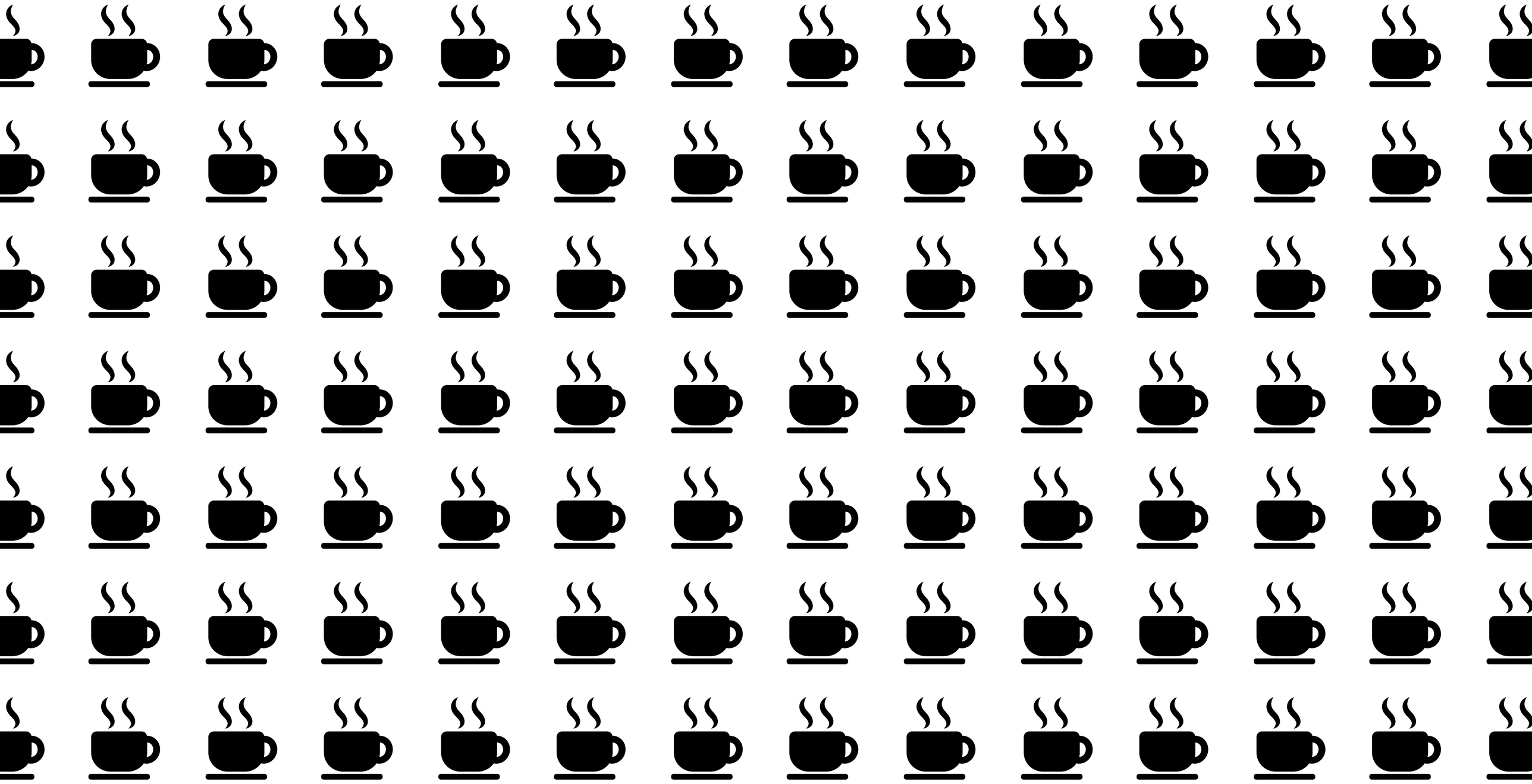


1. Долгая компиляция

badoo_tech



- Проект и зависимости: 9 минут
- Небольшое изменение Swift: 4 минуты
- BadooUIKit: 0.05 минуты (3 секунды)



2. Сложности просмотра компонентов

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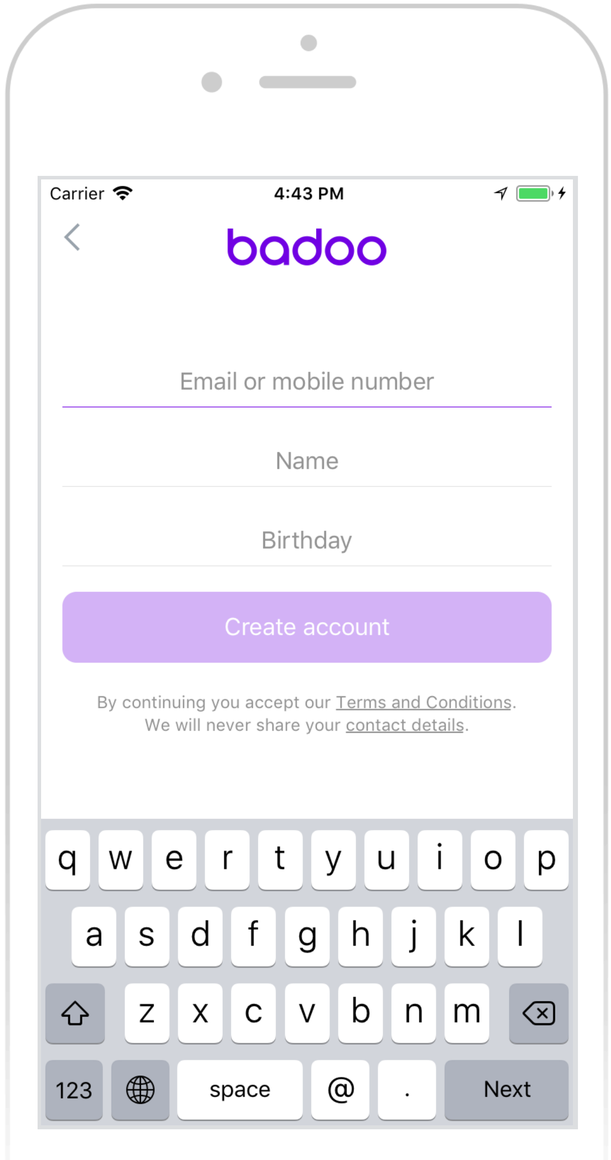
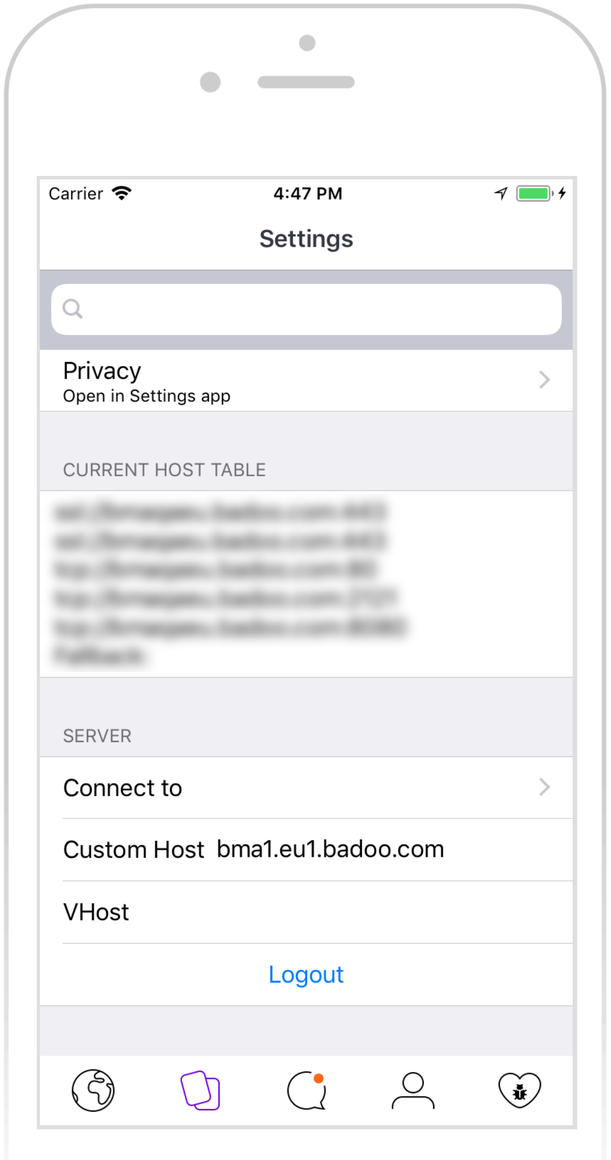
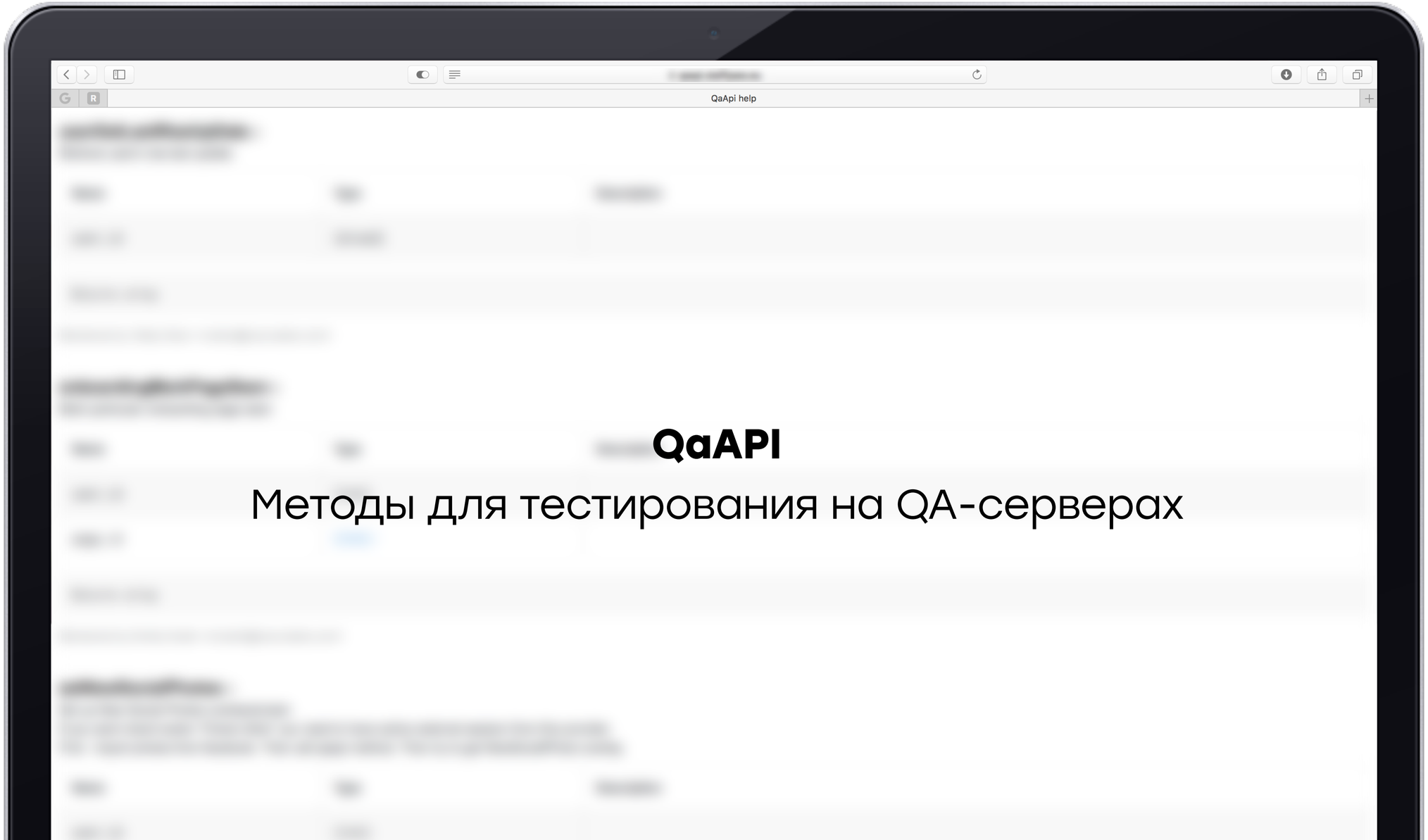




2. Сложности просмотра компонентов

badoo_tech



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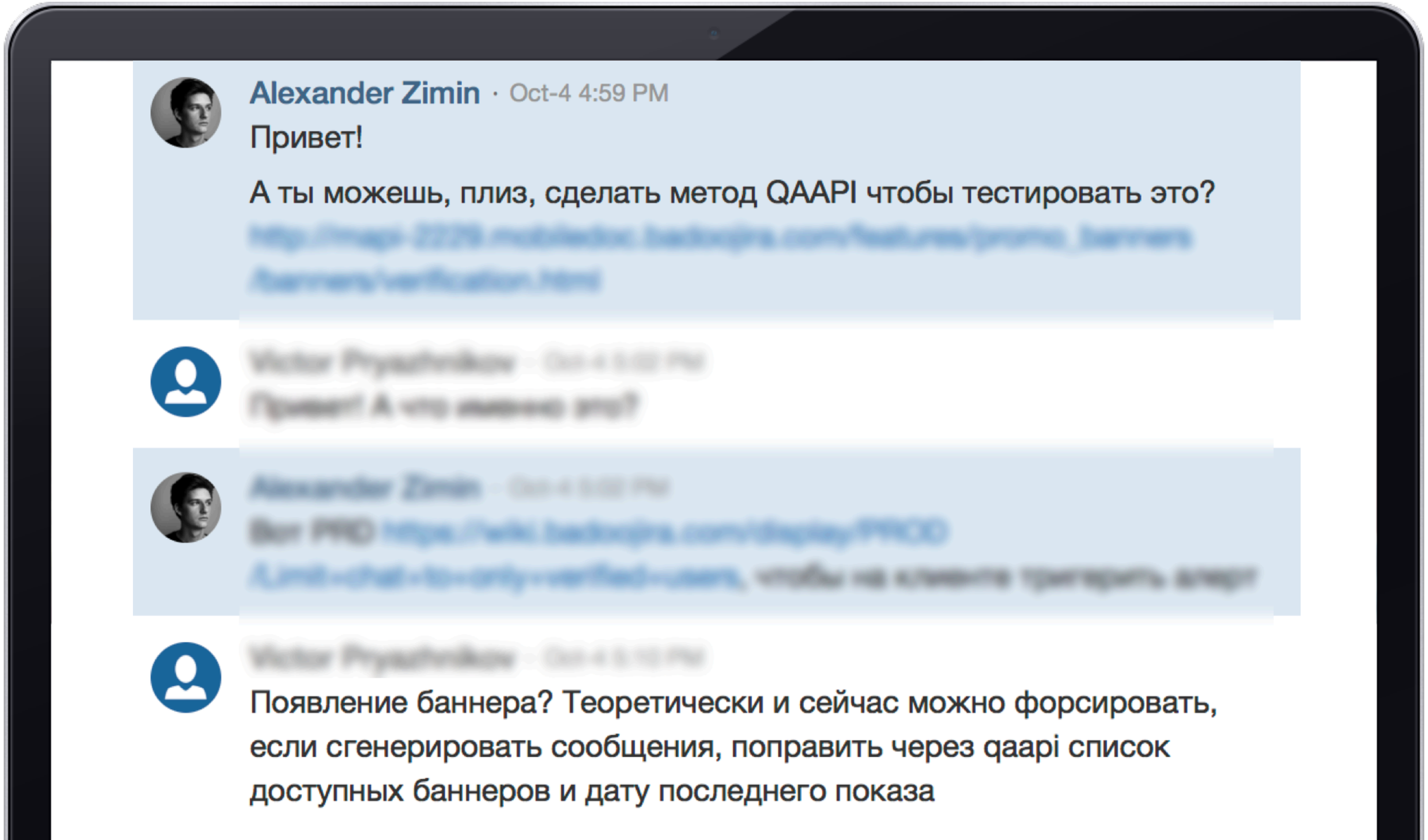
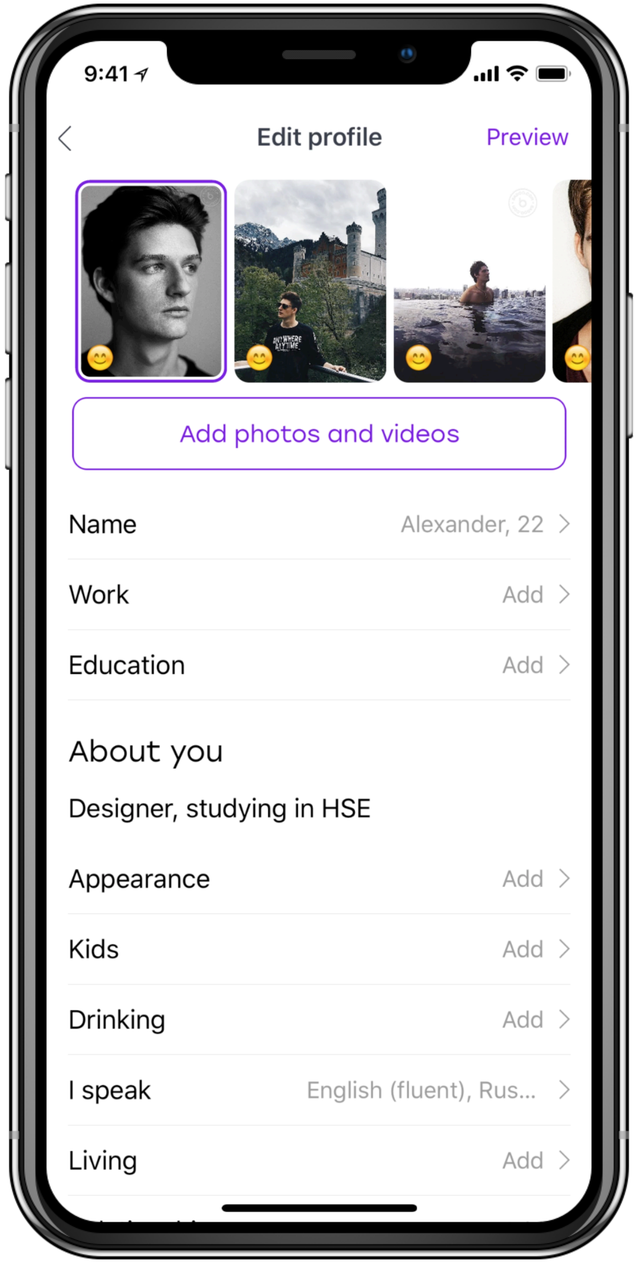
badoo_tech



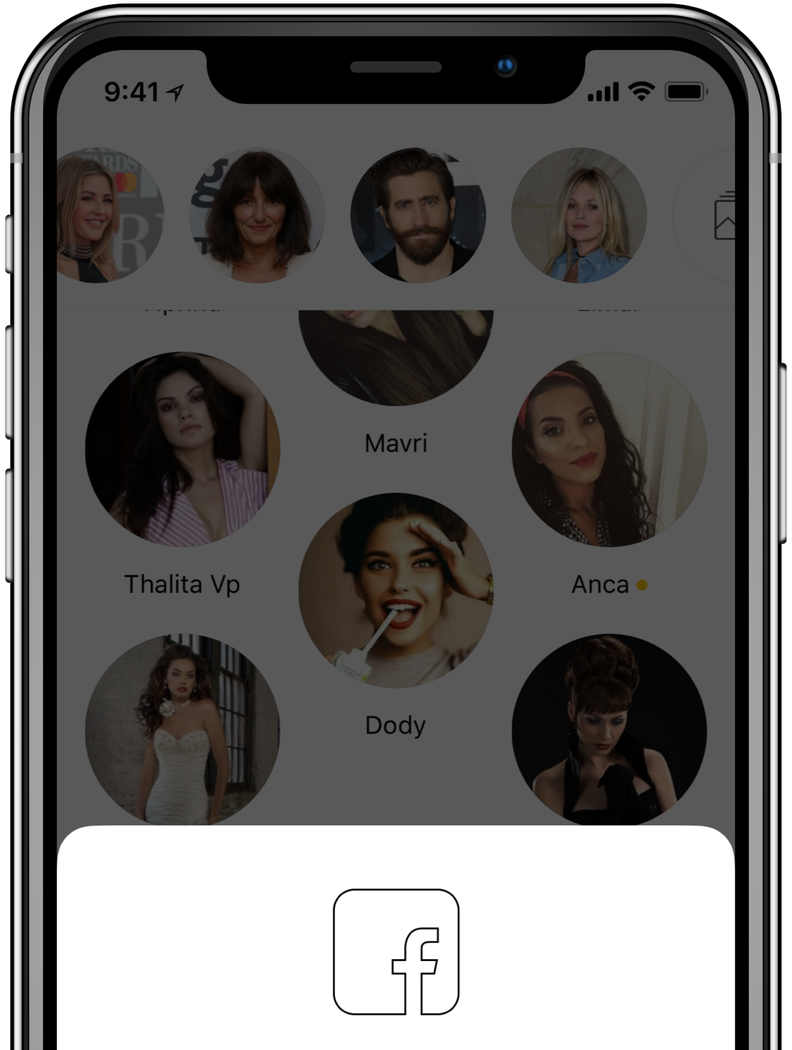
3. Ошибки в дизайне
Старые экраны

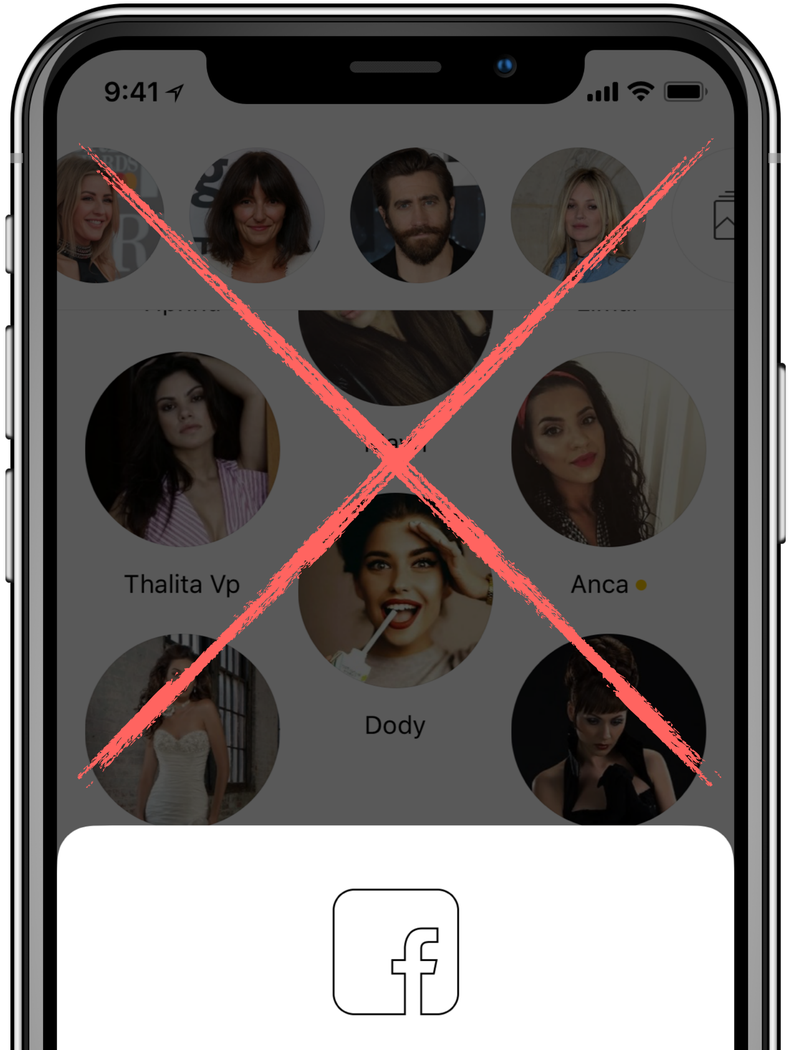
badoo_tech



3. Ошибки в дизайне
Человеческий фактор

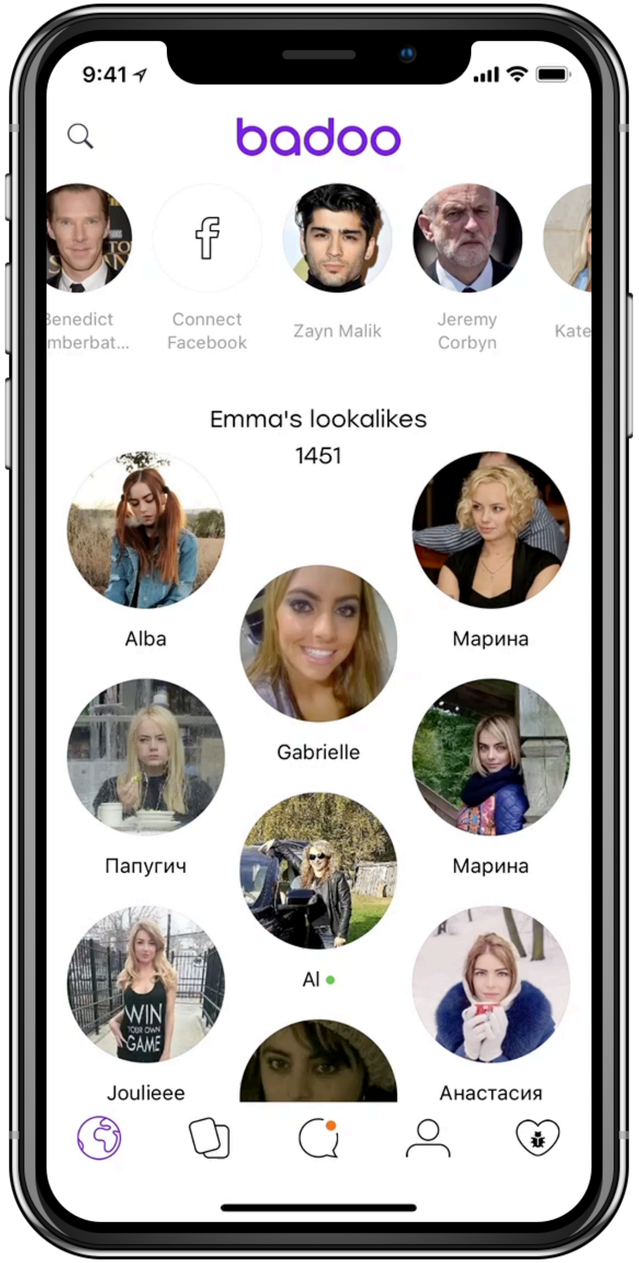
badoo_tech



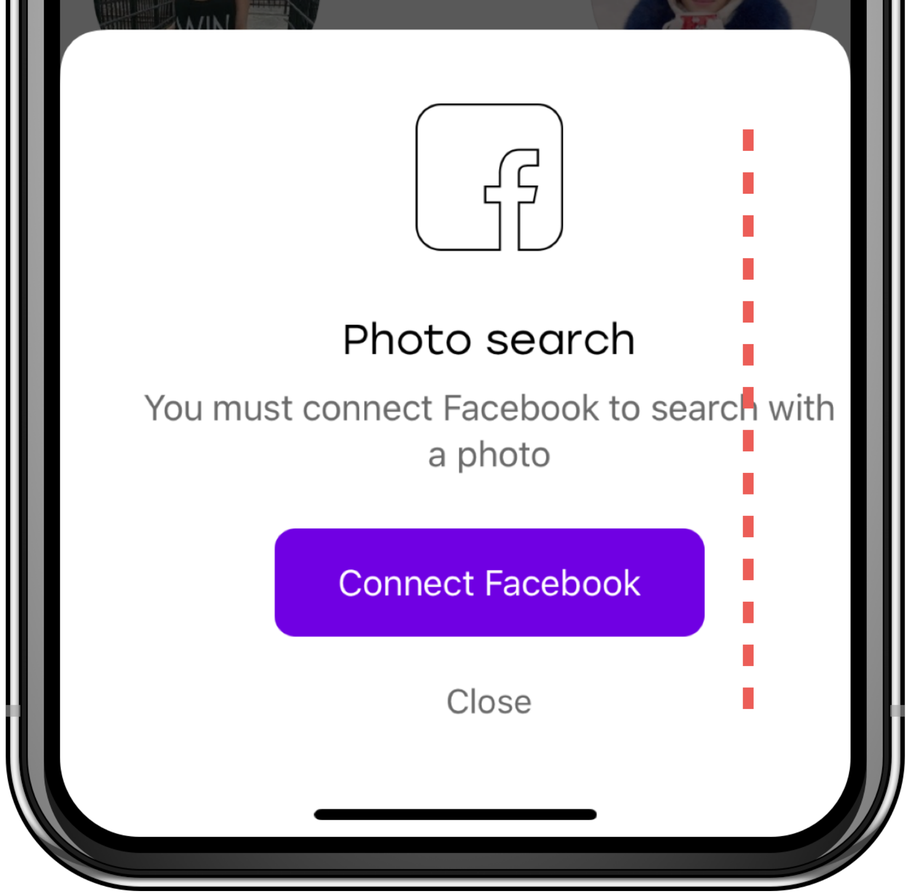


3. Ошибки в дизайне

badoo_tech



- Scroll
- Tap on item
- Tap “Cancel”
- Tap on item
- Tap “Connect”



3. Ошибки в дизайне

Отсутствие регрессионных тестов

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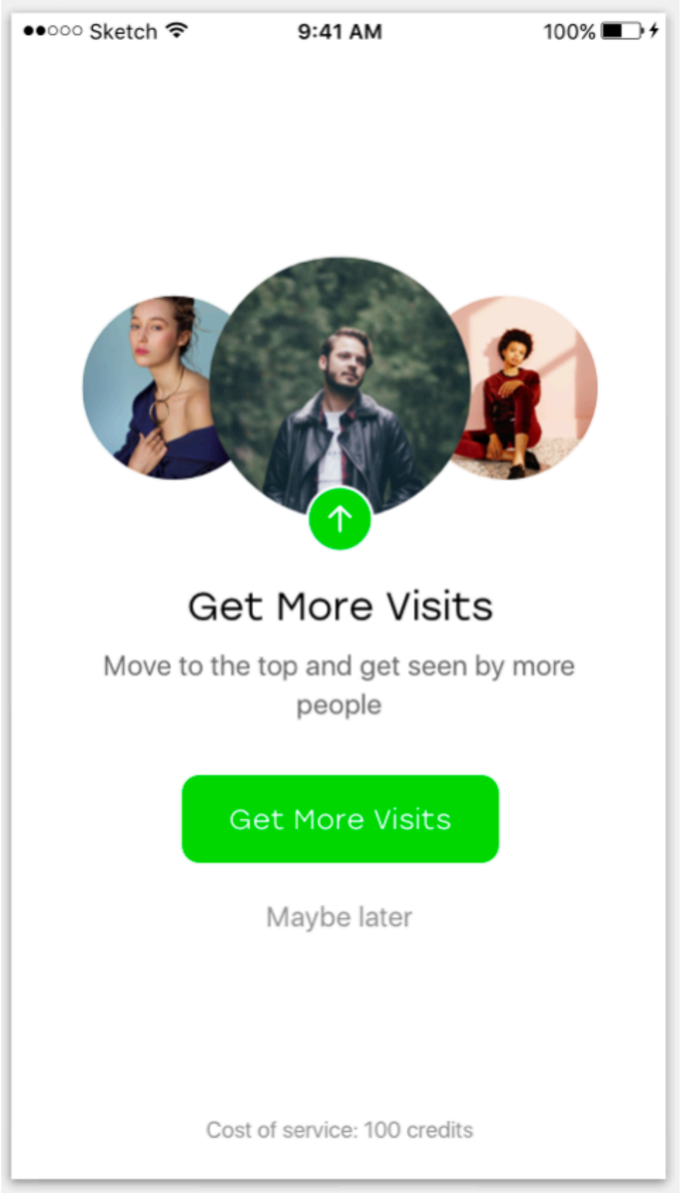
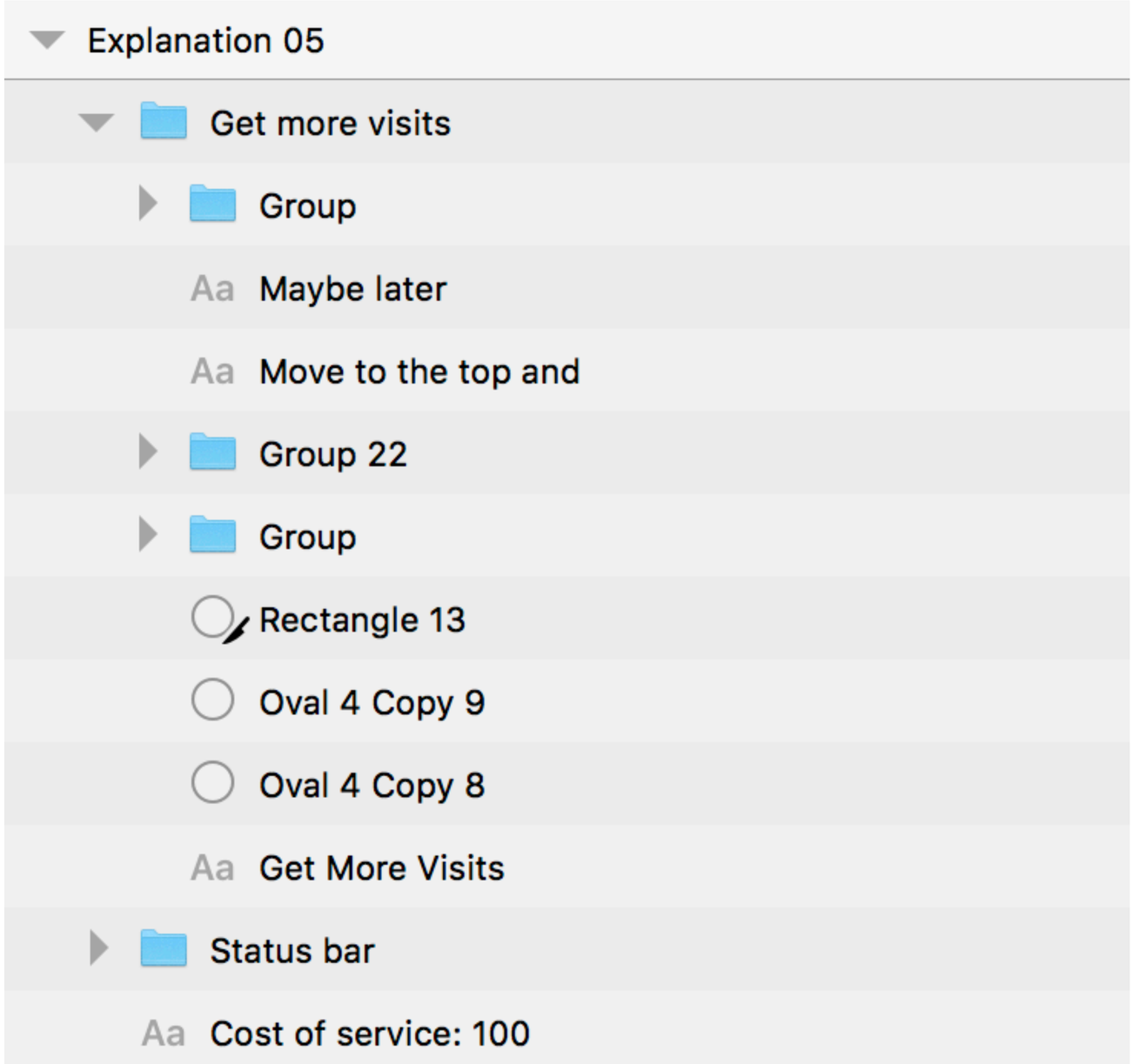
4. Нарушается целостность

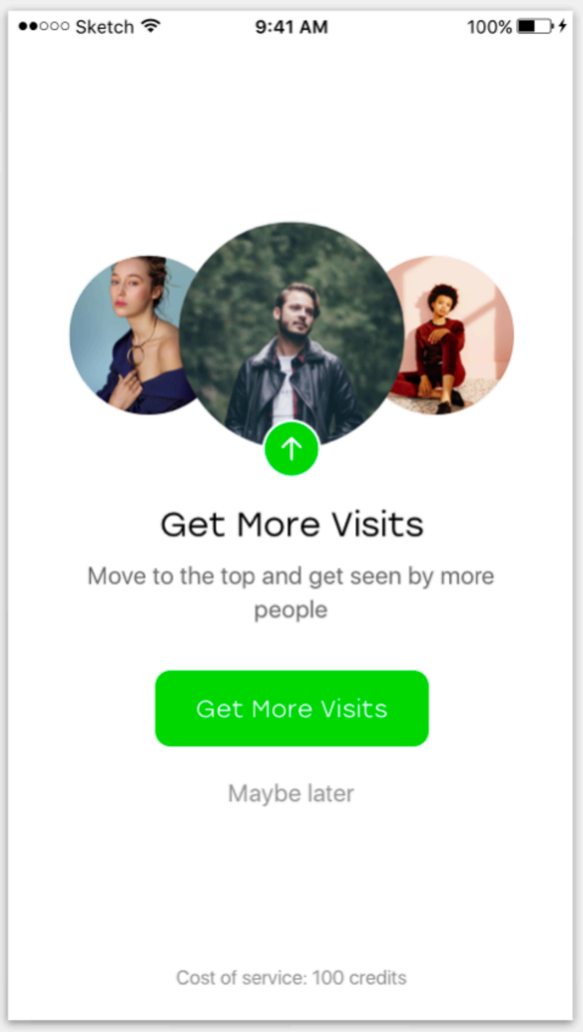
badoo_tech



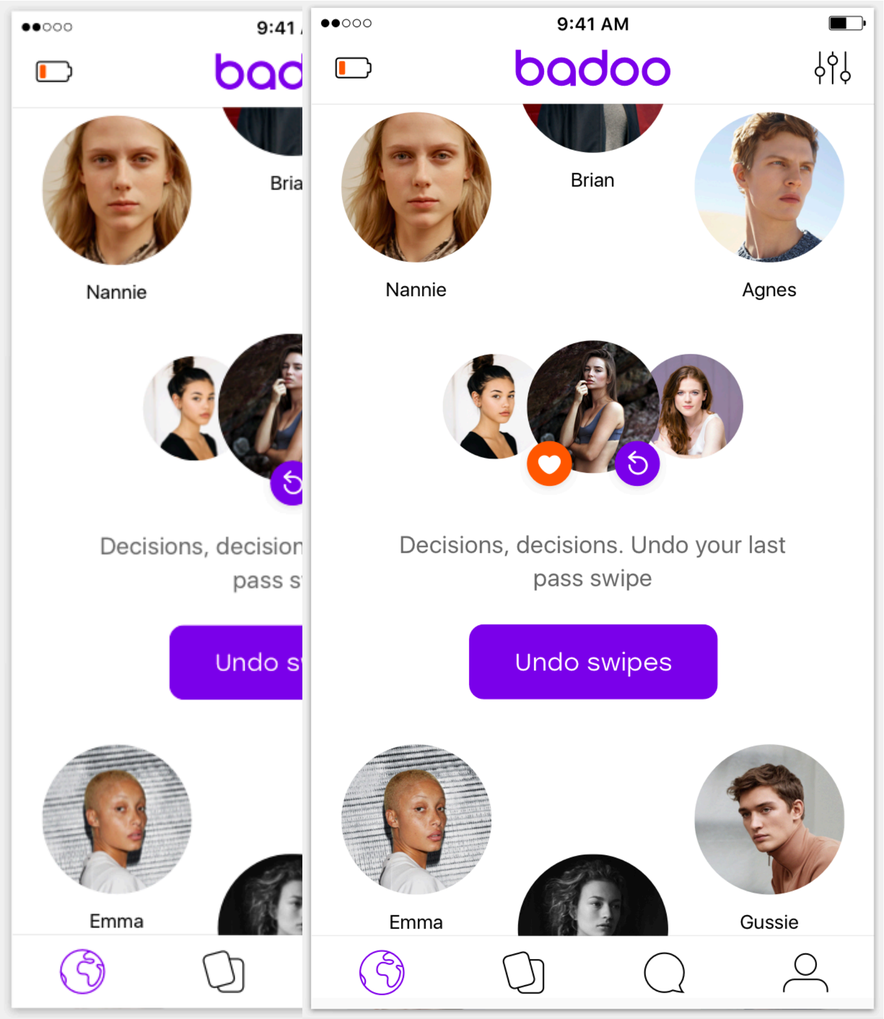


4. Нарушается целостность

badoo_tech

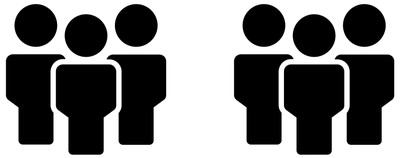


- CMD + C
- CMD + V



4. Нарушается целостность

badoo_tech



4. Нарушается целостность

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Где-то в финансовом отделе

5. Другой разработчик может что-то сломать

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- Вопросы:
  - «В каких состояниях может существовать визуальный элемент?»
  - «Какие компоненты могут влиять на состояния графического элемента?»
- Сколько минут требует ответ на эти вопросы? **Две** или **Десять и больше**?

Акт 2

Давайте все править

“Nothing is particularly hard if you divide it in small jobs.”

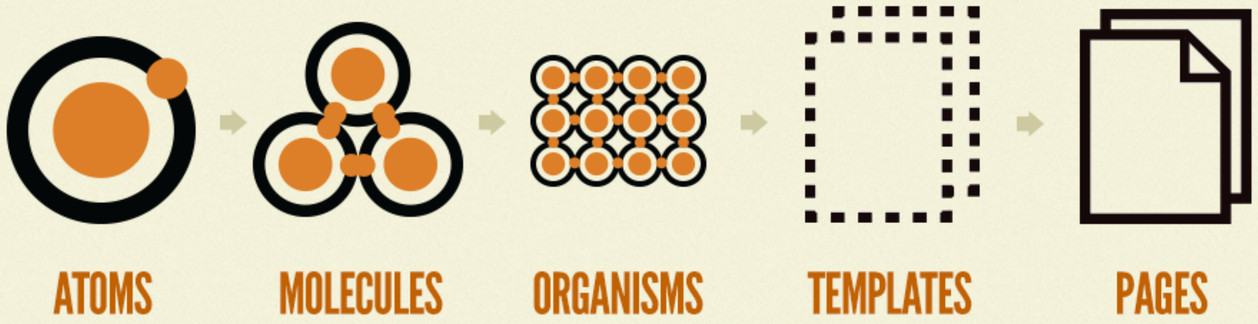
– Henry Ford

Как все исправить?

- Делим на компоненты
- Точно описываем все точки влияния на систему (EUA)
- Работаем в стороннем модуле
- Покрываем снапшот тестами
- Profit

Акт 2 Часть 1

Из хаоса в порядок



http://bradfrost.com/blog/post/atomic-web-design/

Periodic Table of the Elements

html																col	table
head	span									div	fieldset	form	body	h1	section	colgroup	tr
title	a									pre	meter	select	aside	h2	header	caption	td
meta	rt	dfn	em	i	small	ins	s	br	p	blockquot	legend	optgroup	address	h3	nav	menu	th
base	rp	abbr	time	b	strong	del	kbd	hr	ol	dl	label	option	datalist	h4	article	command	tbody
link	noscript	q	var	sub	mark	bdi	wbr	figcaptior	ul	dt	input	output	keygen	h5	footer	summary	thead
style	script	cite	samp	sup	ruby	bdo	code	figure	li	dd	textarea	button	progress	h6	hgroup	details	tfoot
						img	area	map	embed	object	param	source	iframe	canvas	track	audio	video

- Root element
- Metadata and scripting
- Embedding content
- Text-level semantics
- Grouping content
- Forms
- Document sections
- Tabular data
- Interactive elements

Элементарные частицы, которые нельзя разделить
на более мелкие

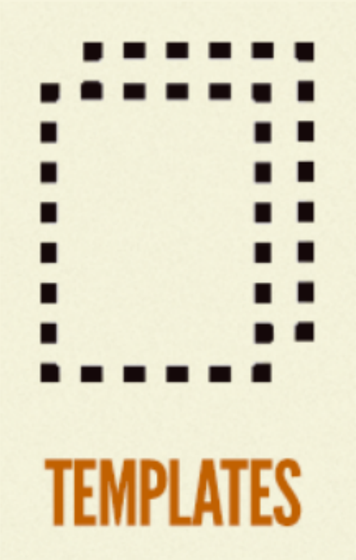
Например, иконка

Составные компоненты, образуют обобщенный визуальный элемент

Например, поиск

Независимые визуальные компоненты

Например, ChildViewController



Целые экраны

Templates – моки, Pages – реальные данные

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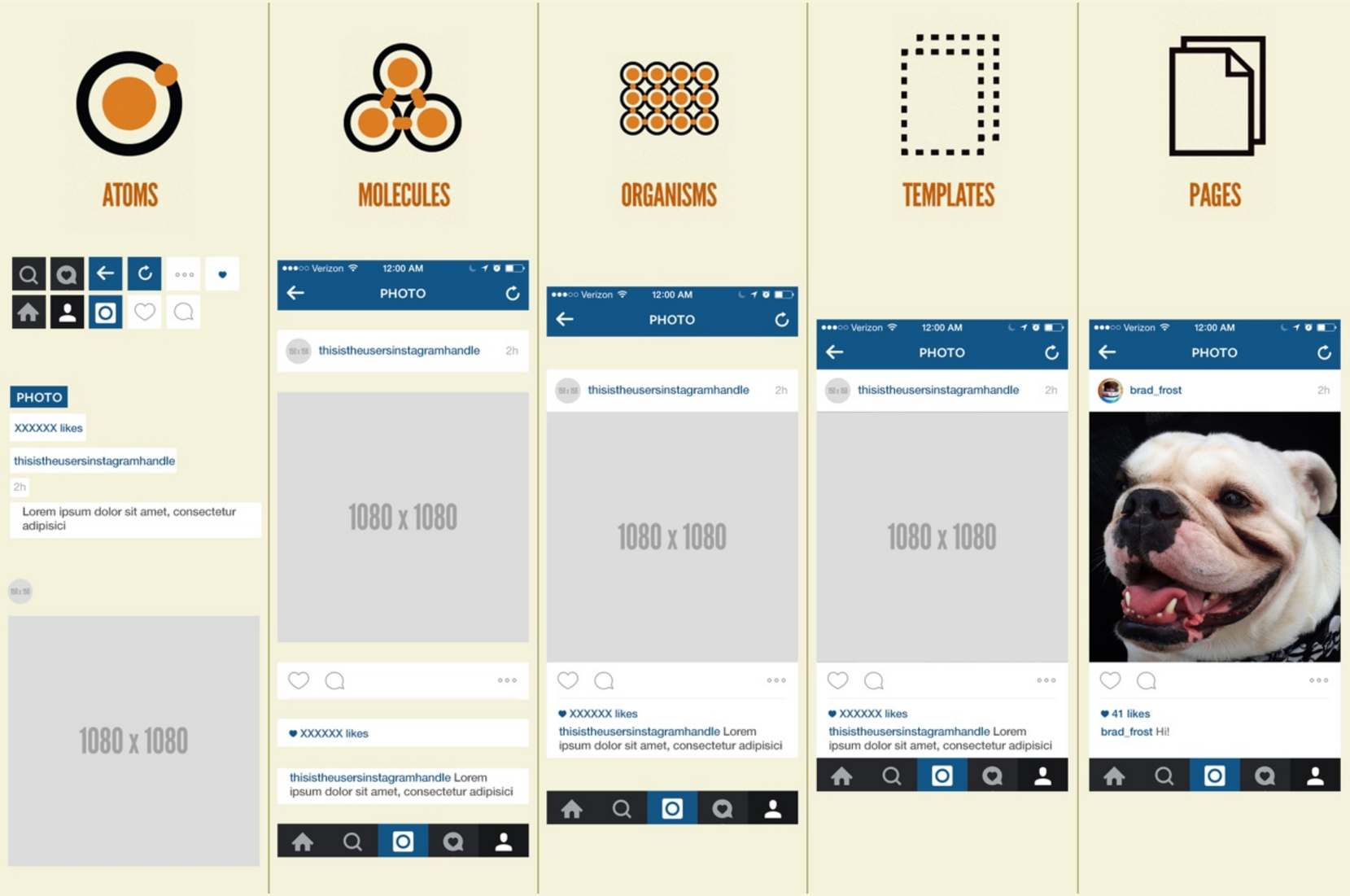
ATOMS
MOLECULES
ORGANISMS
TEMPLATES
PAGES
PHOTO
XXXXXX likes
thisistheusersinstagramhandle
2h
Lorem ipsum dolor sit amet, consectetur adipisici
1080 x 1080
Verizon
12:00 AM
PHOTO
thisistheusersinstagramhandle
2h
1080 x 1080
XXXXXX likes
thisistheusersinstagramhandle Lorem ipsum dolor sit amet, consectetur adipisici
brad_frost
2h
41 likes
brad_frost Hi!

https://m.badoo.com/styleguide

badoo
Mobile Web Styleguide

COMPONENTS

CORE
- COLORS
- TYPOGRAPHY
- ICONS

ELEMENTS
- BADGE APPSTORE
- BRICKS
- BUTTONS
- CAROUSEL
- CHAT
- CONNECTIONS
- CTA BOX
- FEATURE CARDS
- FEATURES LIST
- FORMS
- GIFTS
- INAPP NOTIFICATIONS
- MARKS
- MODALS
- NAVIGATION BAR
- PAYMENTS
- PHOTO GRID
- PLACARD
- PROFILE ACTION BUTTONS
- SELECTOR
- SPRING BOX

FEATURE CARDS

SIMPLE

picture + title + text

200 x 200

Lorem ipsum dolor
Consectetur adipisicing

picture + title (long) + action

200 x 200

Lorem ipsum dolor consectetur adipisicing
Tempora placeat

picture + title + text + action

200 x 200

Lorem ipsum dolor
Consectetur adipisicing
Tempora placeat

picture + title + text + badge

200 x 200

Lorem ipsum dolor
Consectetur adipisicing

picture + title + text + badge / processing

Lorem ipsum dolor
Consectetur adipisicing

picture + title + text + mark

200 x 200
123

Lorem ipsum dolor
Consectetur adipisicing

picture + title + text + mark / processing

123

Lorem ipsum dolor
Consectetur adipisicing

picture (disableMasking) + title + text

200 x 100

Lorem ipsum dolor
Consectetur adipisicing

symbol + title + text

Lorem ipsum dolor
Consectetur adipisicing

small text

200 x 200

Consectetur adipisicing

GIFT

picture + title + text

Lorem ipsum dolor
Consectetur adipisicing

picture + title (long) + action

Lorem ipsum dolor consectetur adipisicing
Tempora placeat

picture + title + text + action

Lorem ipsum dolor
Consectetur adipisicing
Tempora placeat

symbol + title + text

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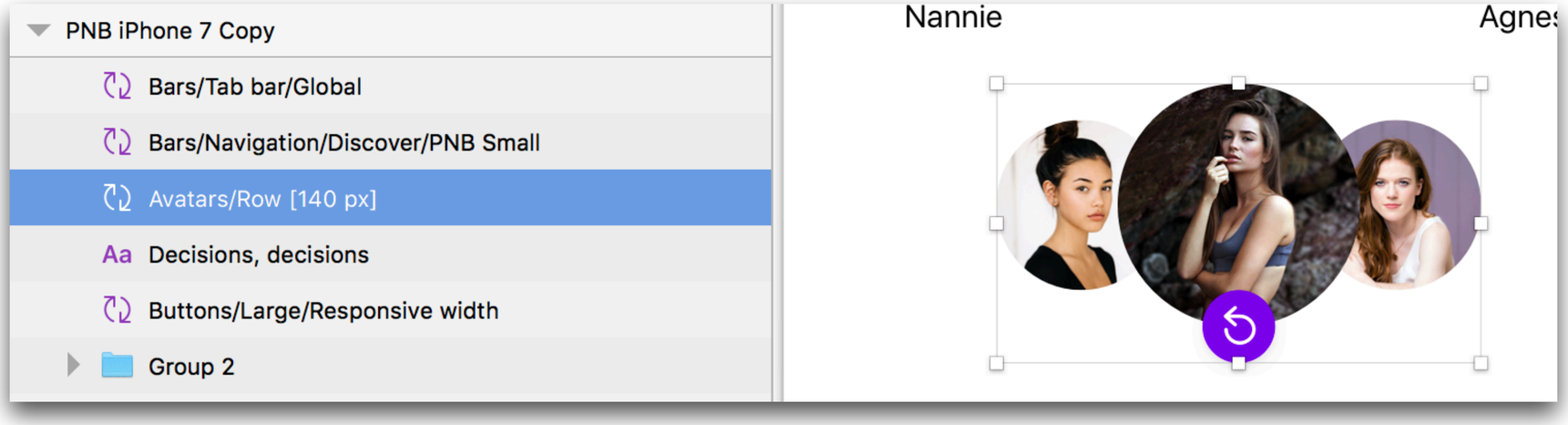
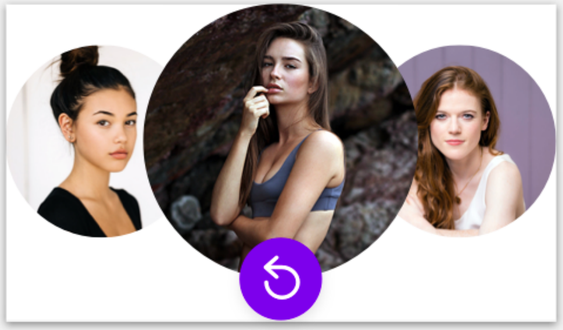
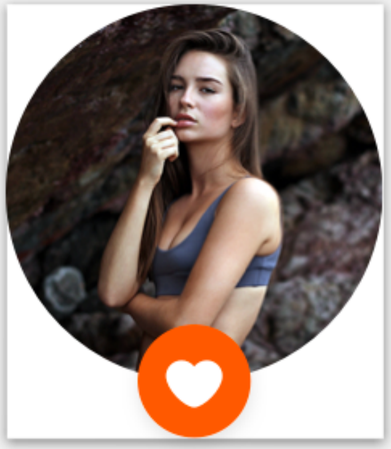

PNB iPhone 7 Copy
Bars/Tab bar/Global
Bars/Navigation/Discover/PNB Small
Avatars/Row [140 px]
Decisions, decisions
Buttons/Large/Responsive width
Group 2
Nannie
Agnes

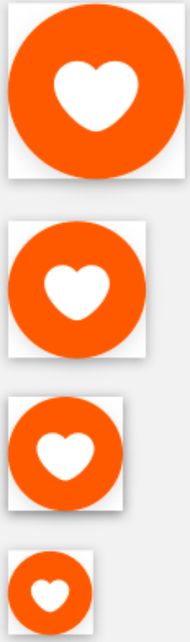
Avatars/S [140 px]



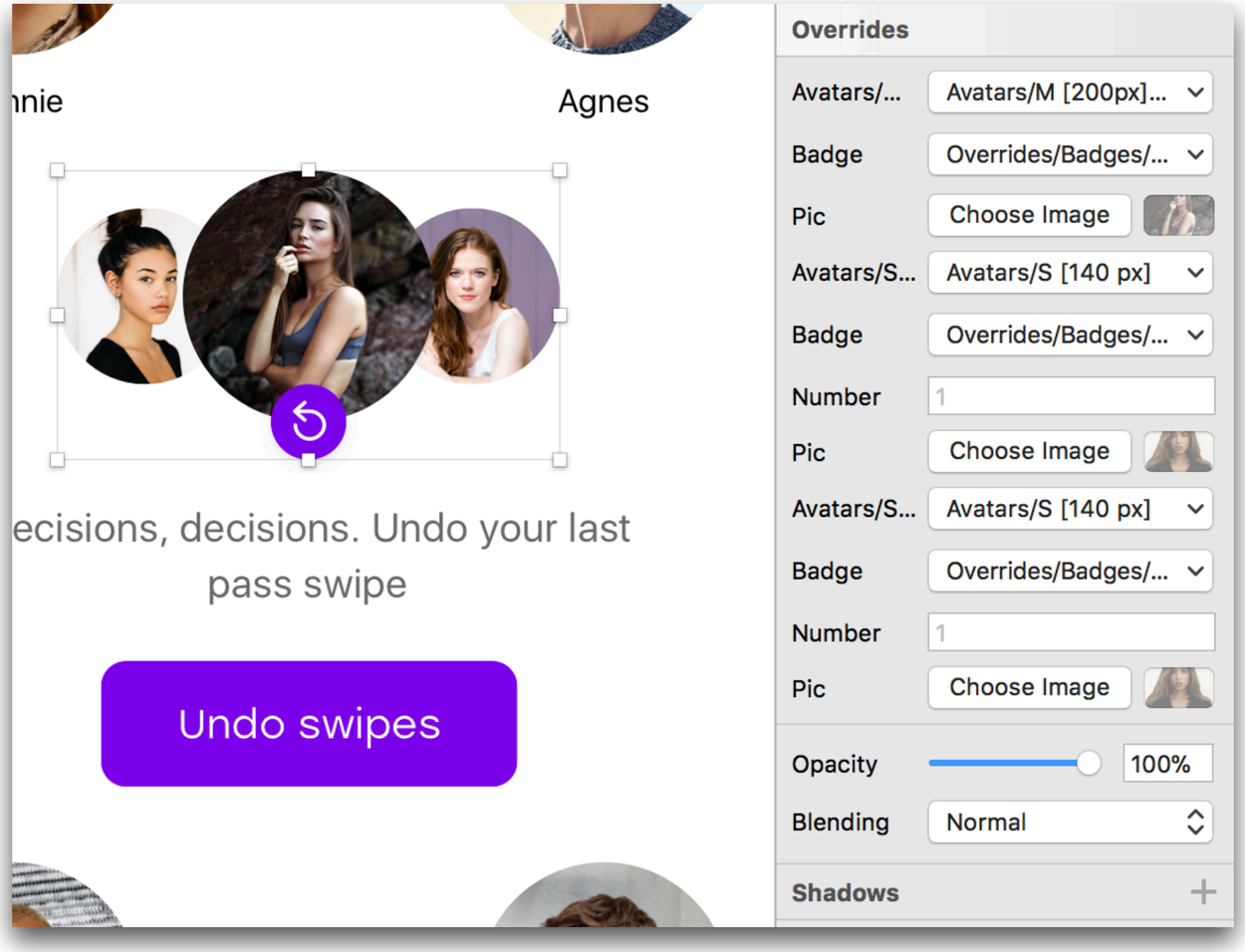
Avatars/M...Big Badge



Ove...tch



badoo_tech


nnie
Agnes
ecisions, decisions. Undo your last pass swipe
Undo swipes
Overrides
Avatars/...
Avatars/M [200px]...
Badge
Overrides/Badges/...
Pic
Choose Image
Avatars/S...
Avatars/S [140 px]
Badge
Overrides/Badges/...
Number
1
Pic
Choose Image
Avatars/S...
Avatars/S [140 px]
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Blending
Normal
Shadows

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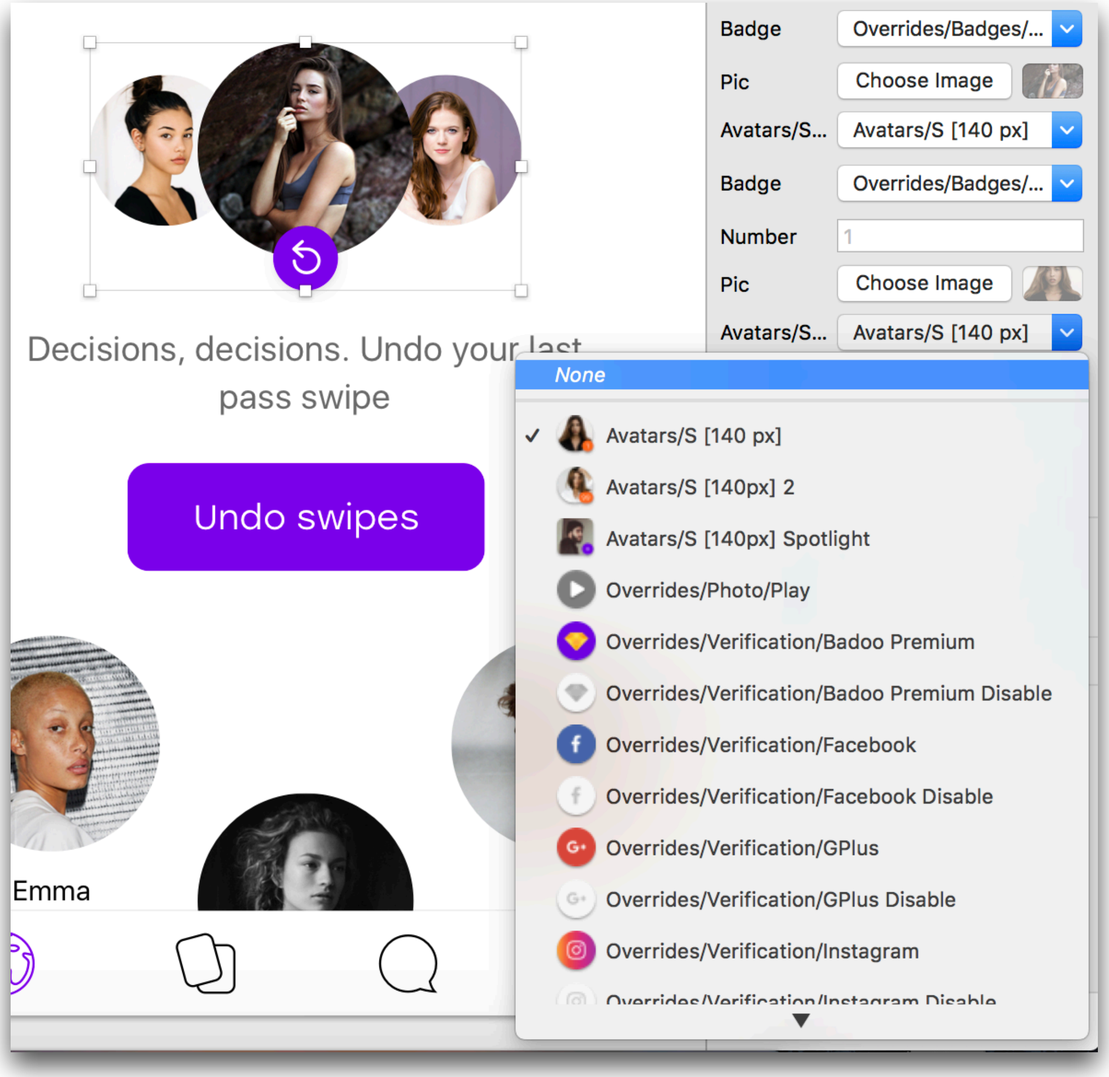
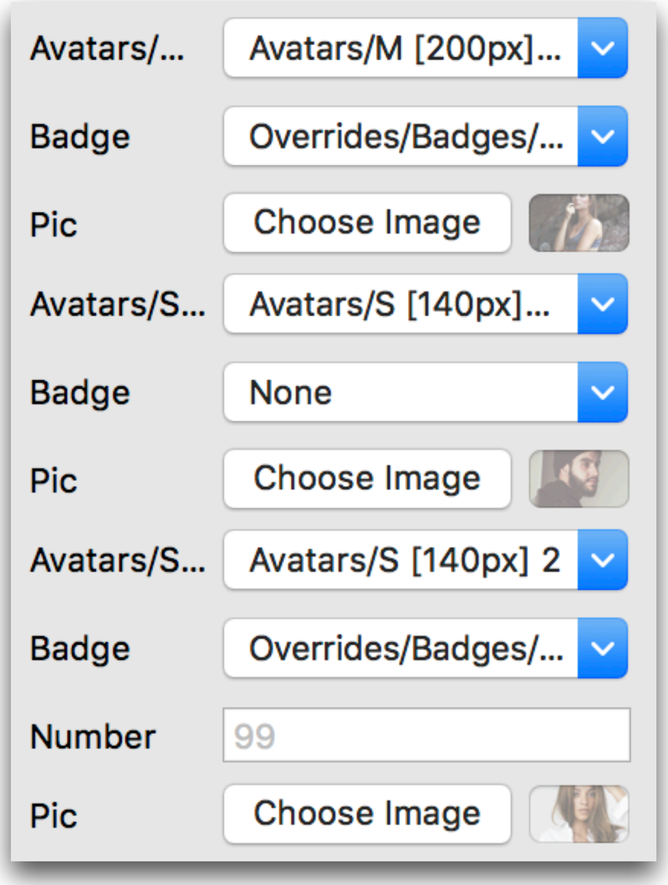
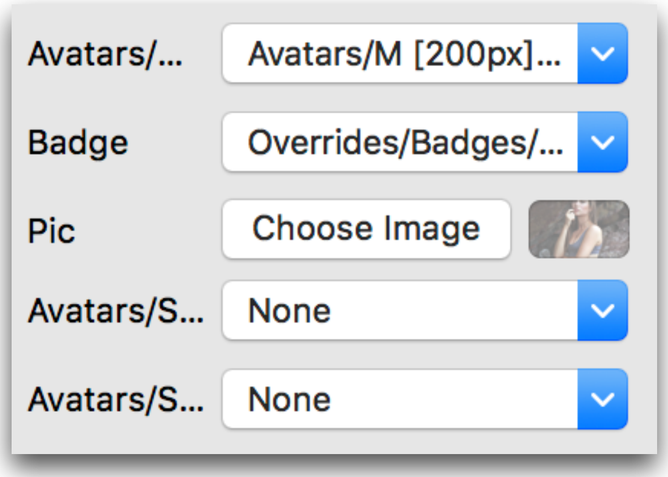
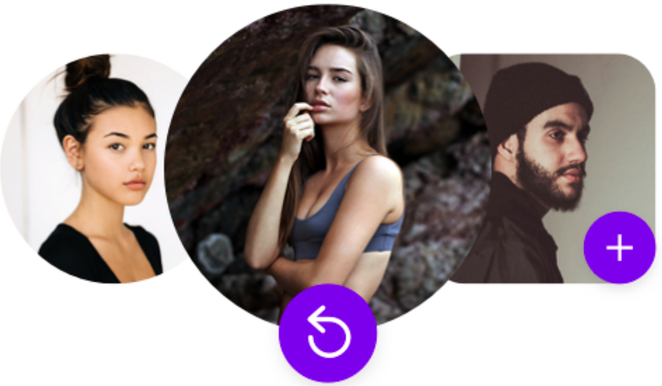
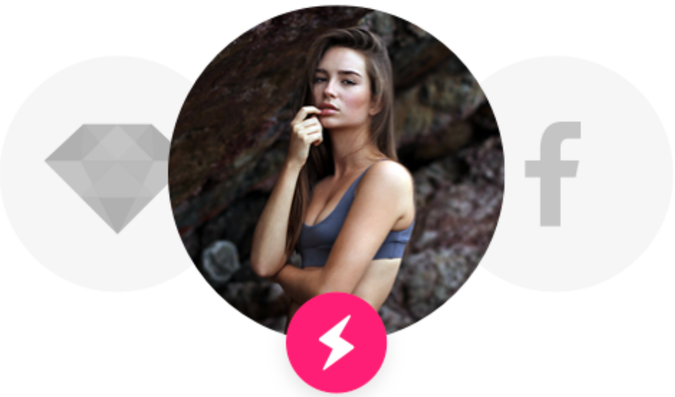

Decisions, decisions. Undo your last pass swipe
Undo swipes
Emma
Badge
Overrides/Badges/...
Pic
Choose Image
Avatars/S...
Avatars/S [140 px]
Badge
Overrides/Badges/...
Number
1
Pic
Choose Image
Avatars/S...
Avatars/S [140 px]
None
Avatars/S [140 px]
Avatars/S [140px] 2
Avatars/S [140px] Spotlight
Overrides/Photo/Play
Overrides/Verification/Badoo Premium
Overrides/Verification/Badoo Premium Disable
Overrides/Verification/Facebook
Overrides/Verification/Facebook Disable
Overrides/Verification/GPlus
Overrides/Verification/GPlus Disable
Overrides/Verification/Instagram


Avatars/...
Avatars/M [200px]...
Badge
Overrides/Badges/...
Pic
Choose Image
Avatars/S...
Avatars/S [140px]...
Badge
None
Pic
Choose Image
Avatars/S...
Avatars/S [140px] 2
Badge
Overrides/Badges/...
Number
99
Pic
Choose Image


Avatars/...
Avatars/M [200px]...
Badge
Overrides/Badges/...
Pic
Choose Image
Avatars/S...
None
Avatars/S...
None

badoo_tech

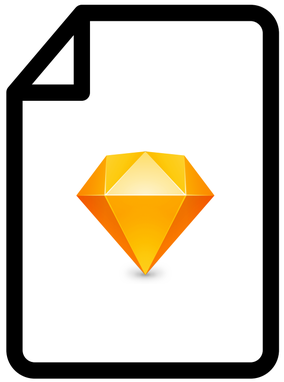




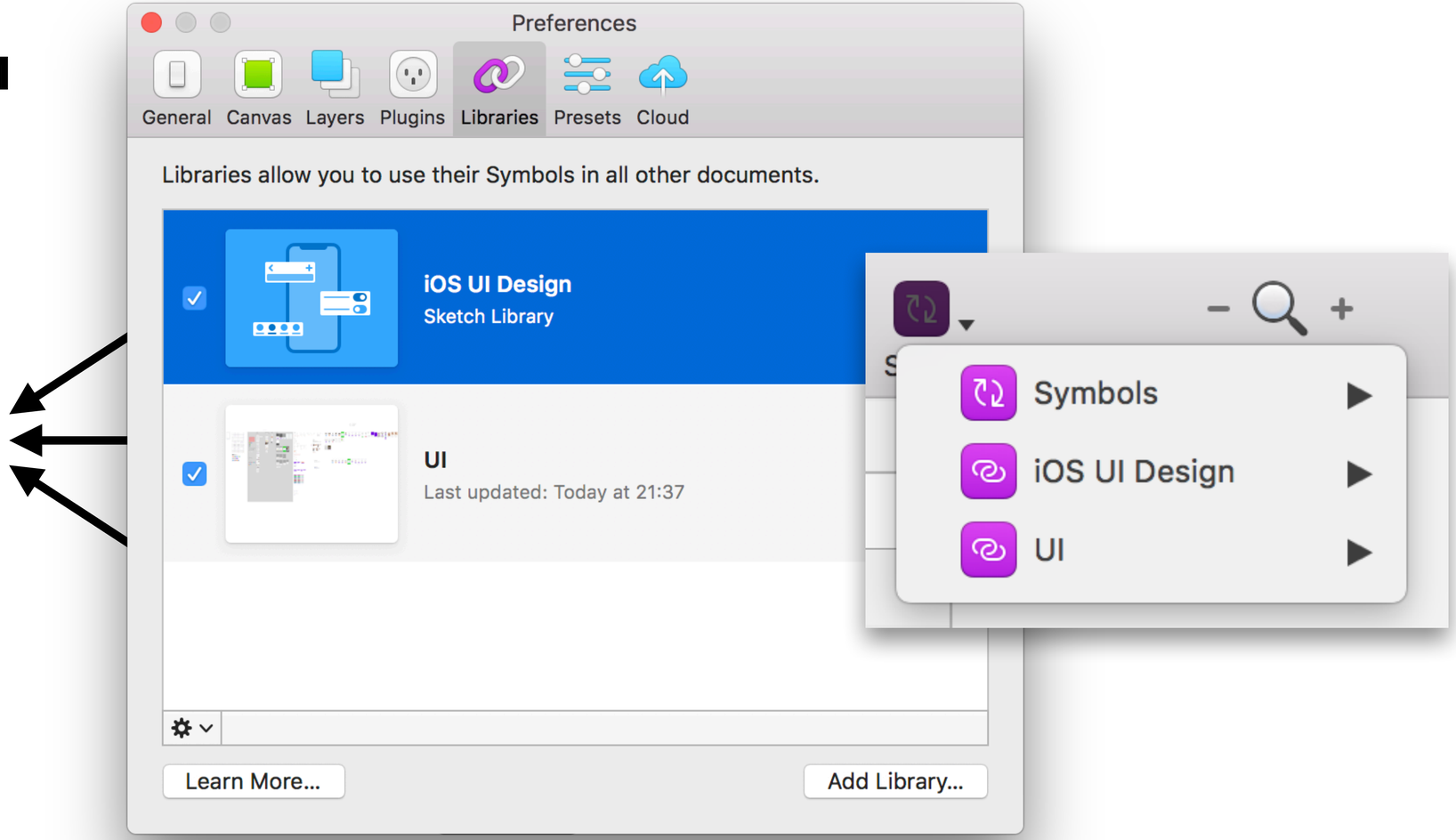
badoo_tech

Файлы, использующие символы базового файла

Базовый файл с символами



Library



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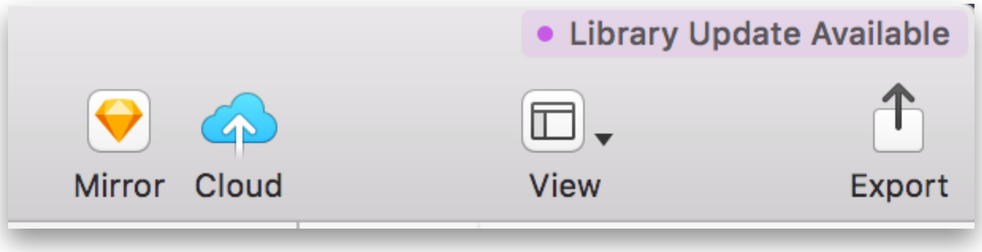
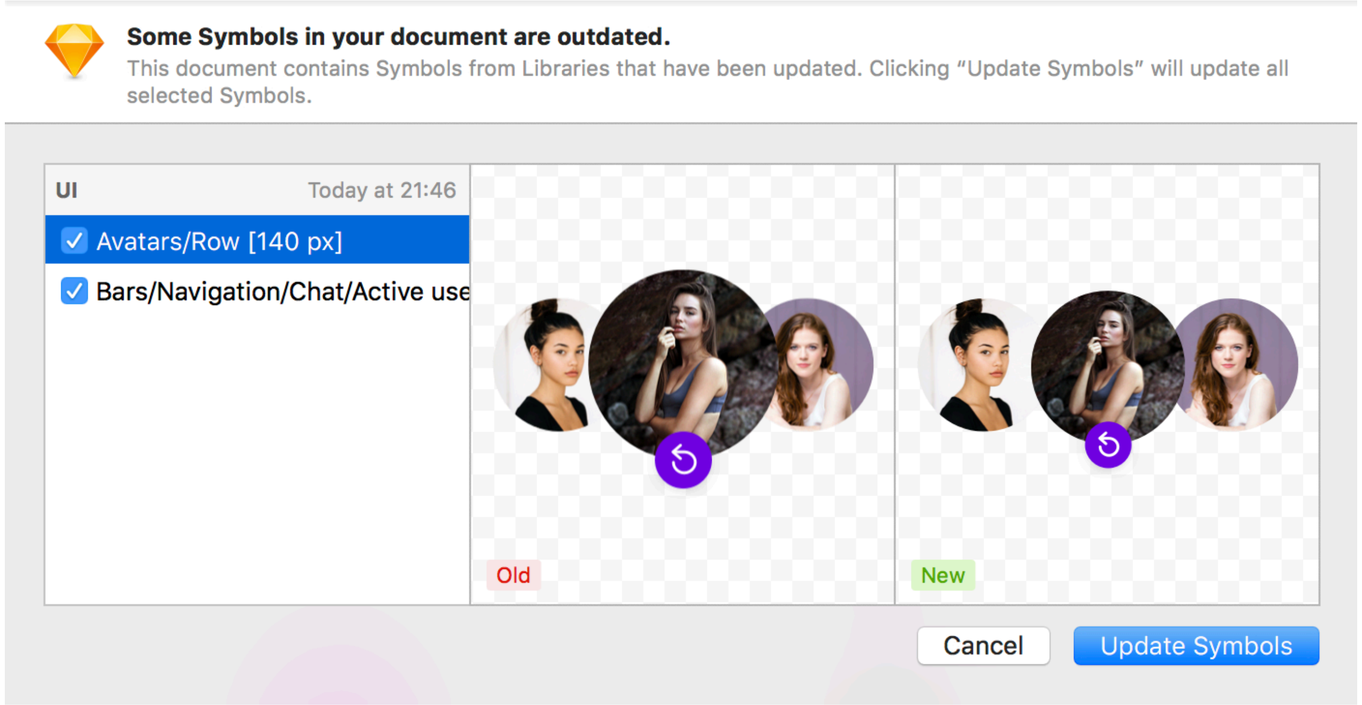

Library Update Available
Mirror
Cloud
View
Export


Some Symbols in your document are outdated.
This document contains Symbols from Libraries that have been updated. Clicking "Update Symbols" will update all selected Symbols.
UI
Today at 21:46
Avatars/Row [140 px]
Bars/Navigation/Chat/Active use
Old
New
Cancel
Update Symbols

badoo
Cosmos Design System 🚀

PLATFORM

BRAND

COMPONENTS

CORE:
- COLORS
- TYPOGRAPHY
- ICONS

ELEMENTS:
- AVATAR
- BRICK
- BRICK GROUP
- BUTTON
- BUTTON GROUP
- CONNECTIONS
- CTA BOX
- FEATURE CARD
- MARK
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- ONLINE STATUS
- PLACARD
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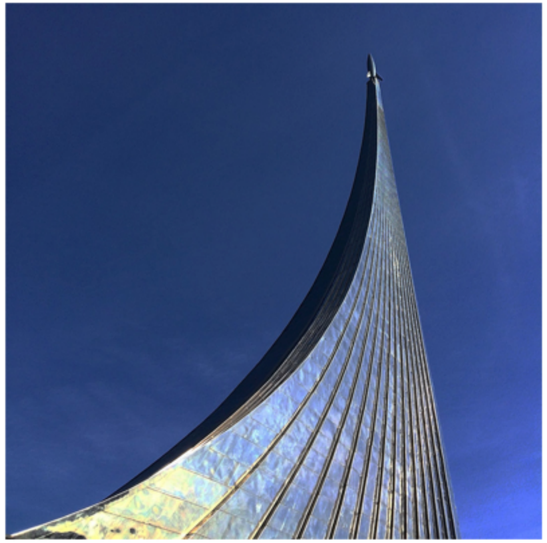

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PLATFORM

BRAND

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CONNECTIONS ITEM - USER

DESIGN DEVELOPMENT

AVATAR

user photo

Lorem ipsum dolor
Consectetur adipisicing

placeholder

K

Lorem ipsum dolor
Consectetur adipisicing

invisible

Lorem ipsum dolor
Consectetur adipisicing

female

Lorem ipsum dolor
Consectetur adipisicing

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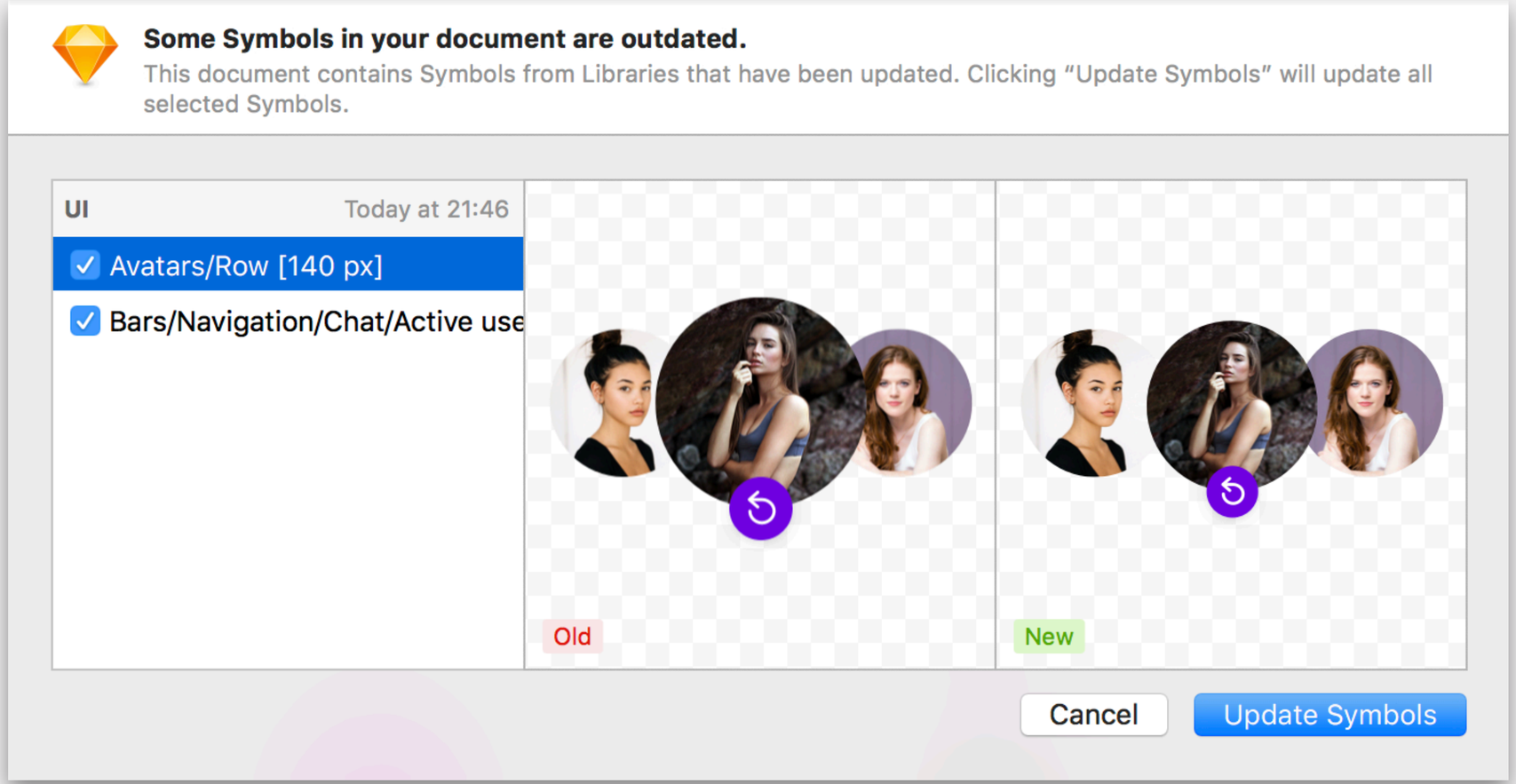
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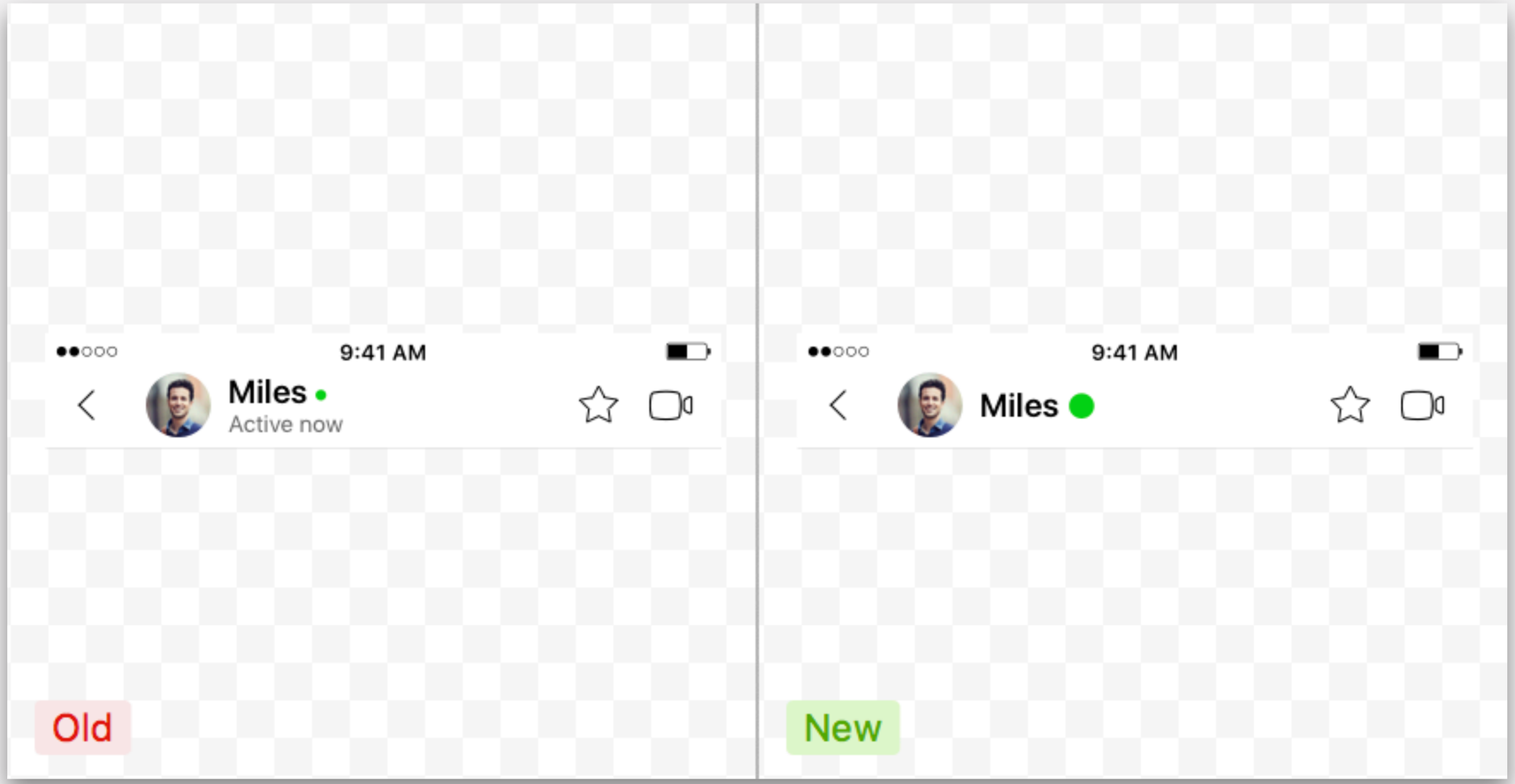
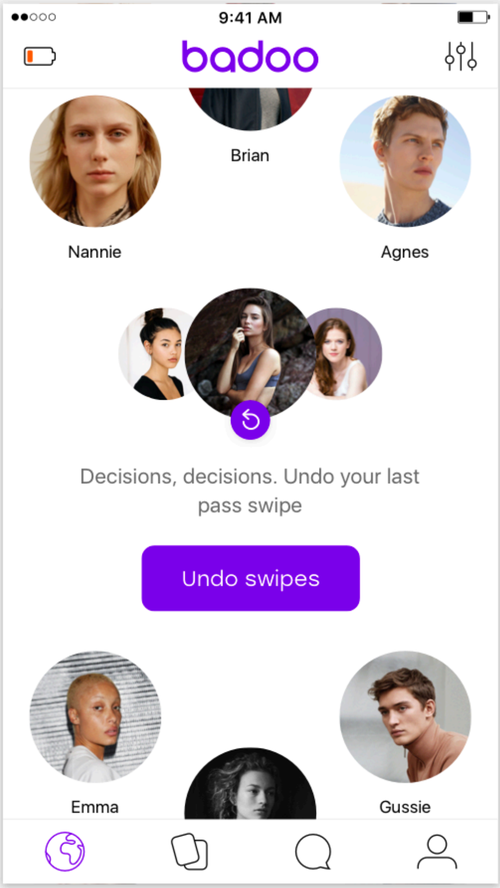
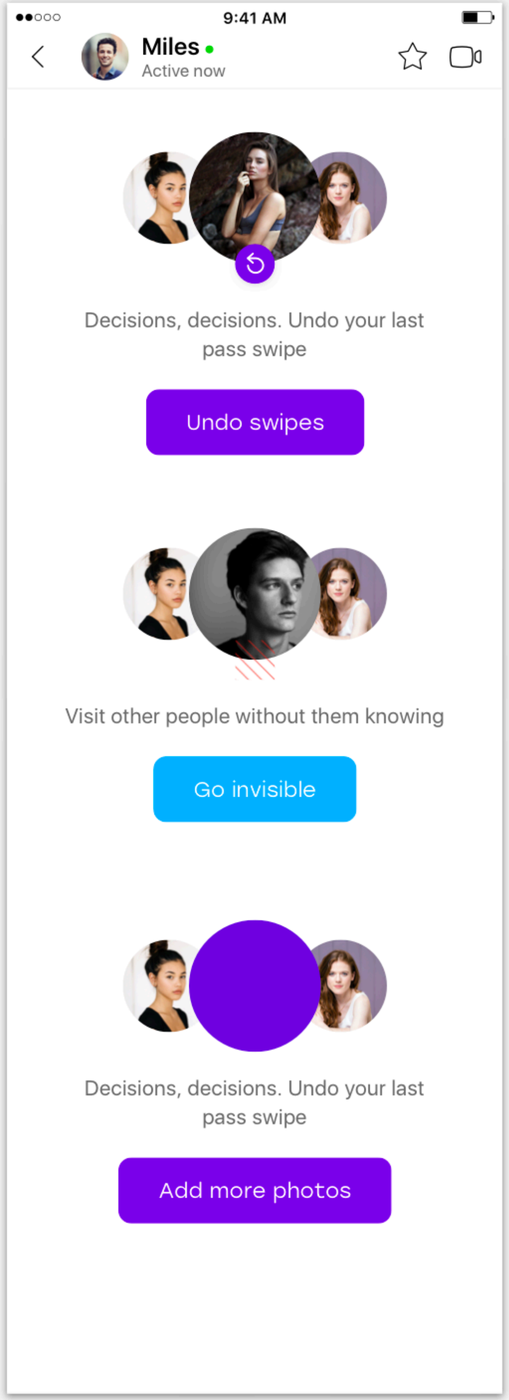


PNB iPhone 7 Copy



02 Blocker IG Copy 2



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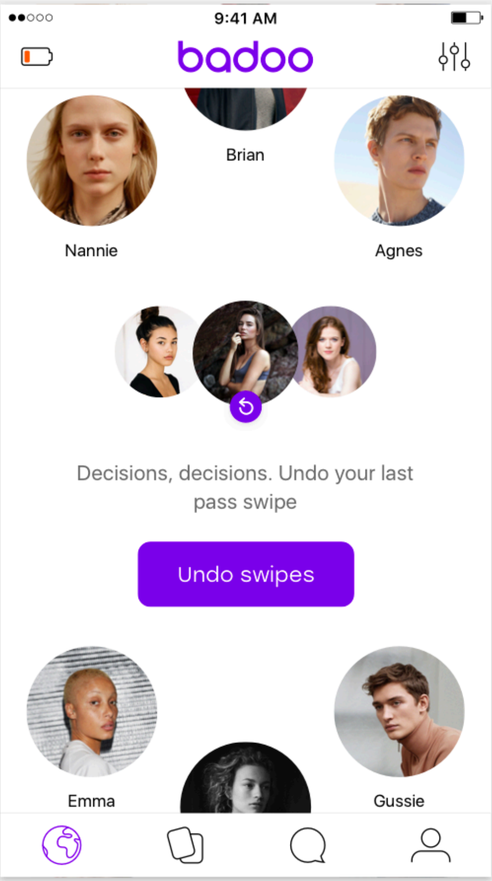
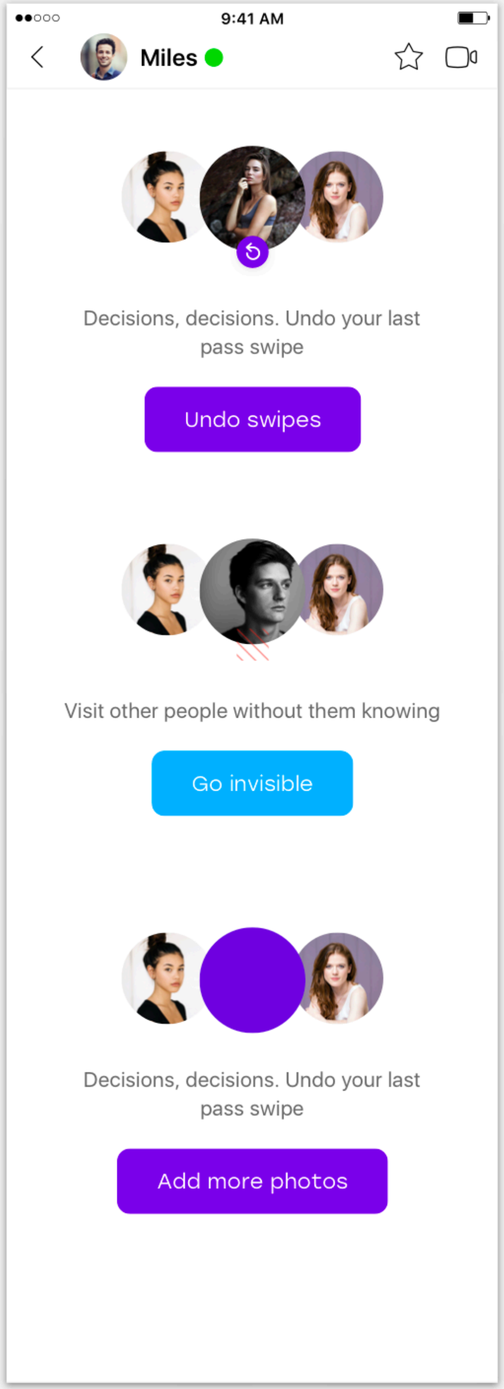
PNB iPhone 7 Copy



02 Blocker IG Copy 2



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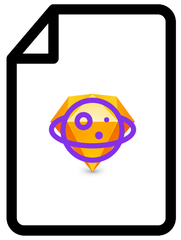
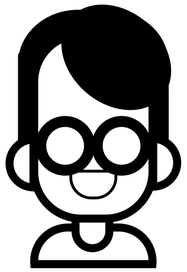
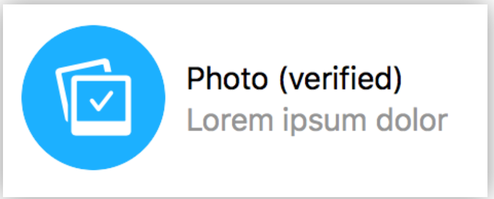
badoo_tech







1.18 -> 1.19

1.18

1.16

1.03

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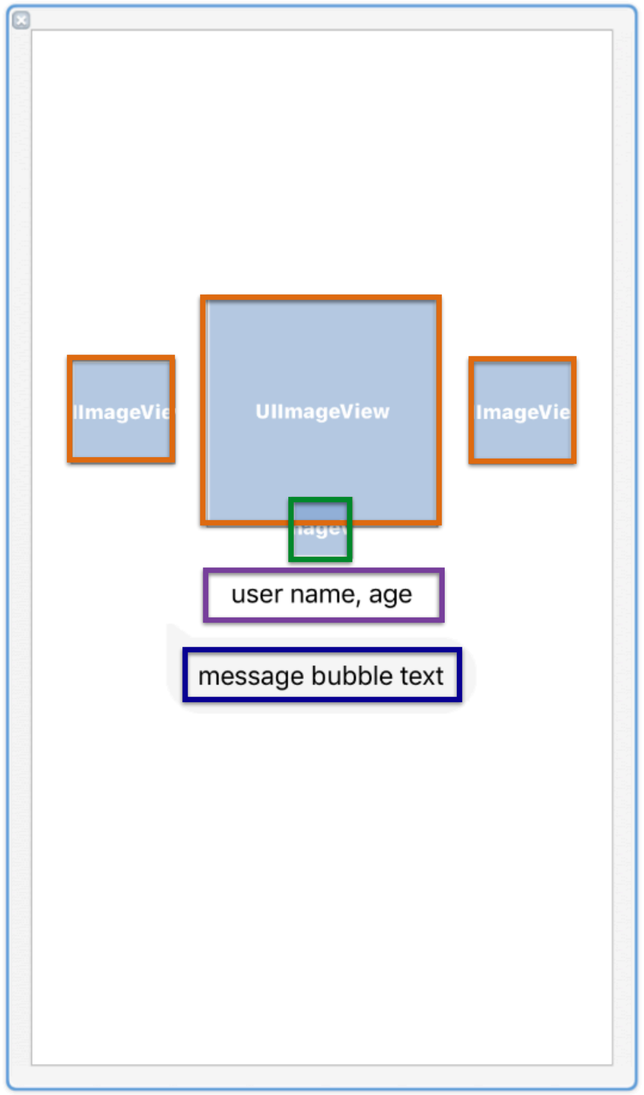

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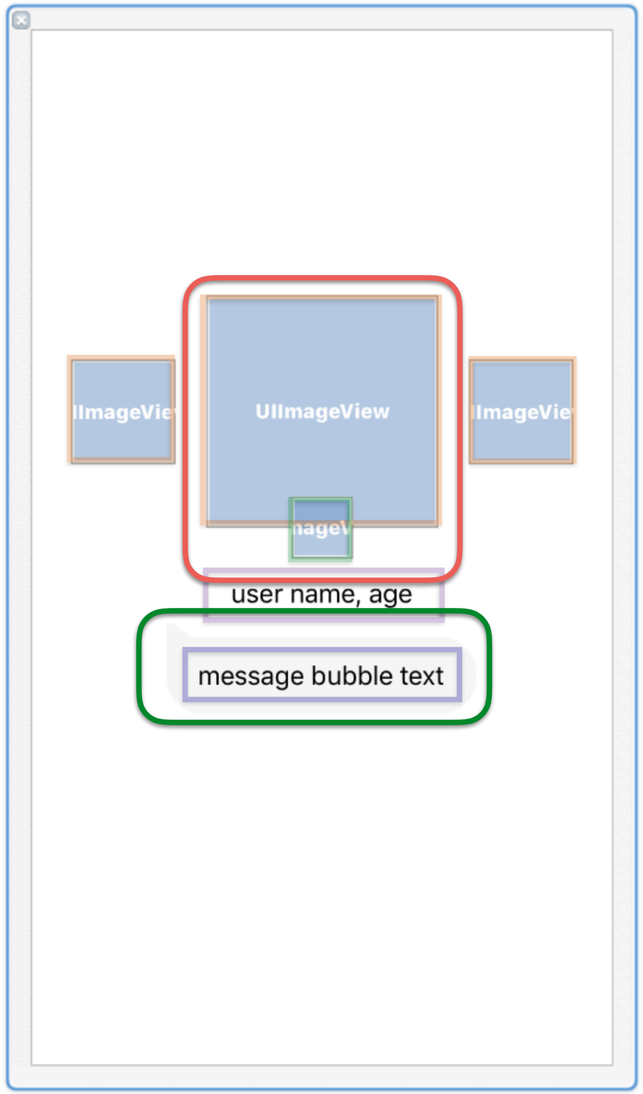

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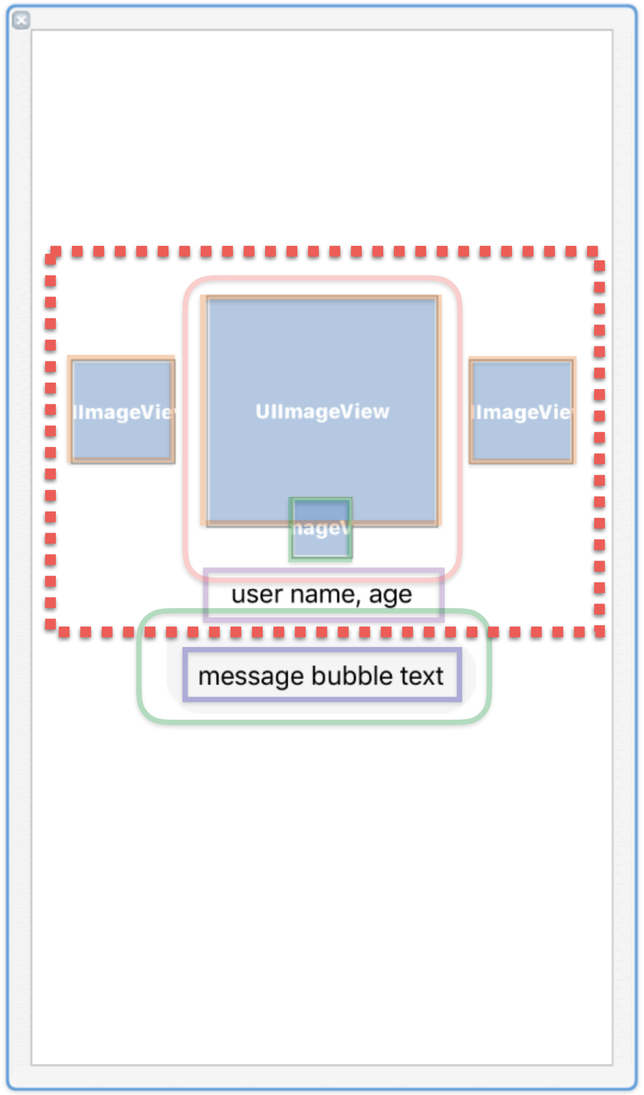

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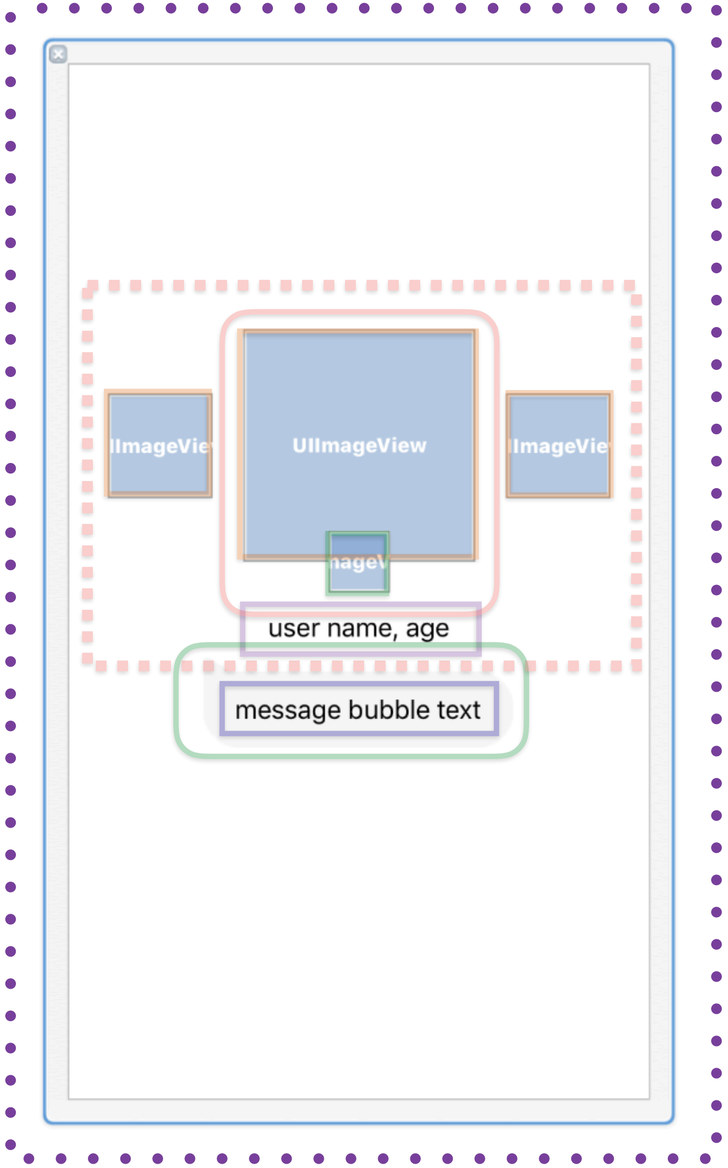

Оверхед?

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Cosmos Design System 🚀

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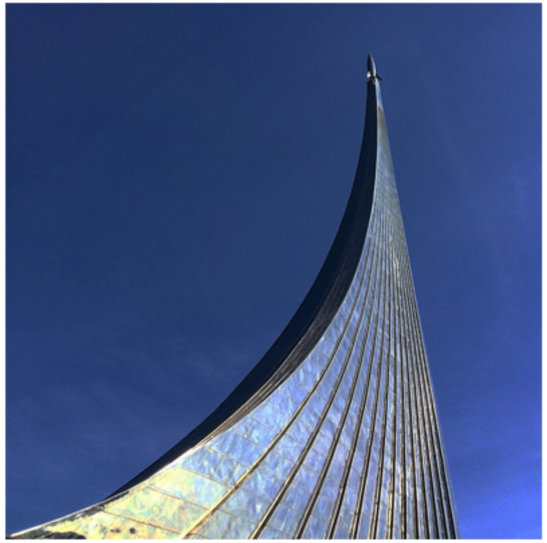

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В отдельный модуль

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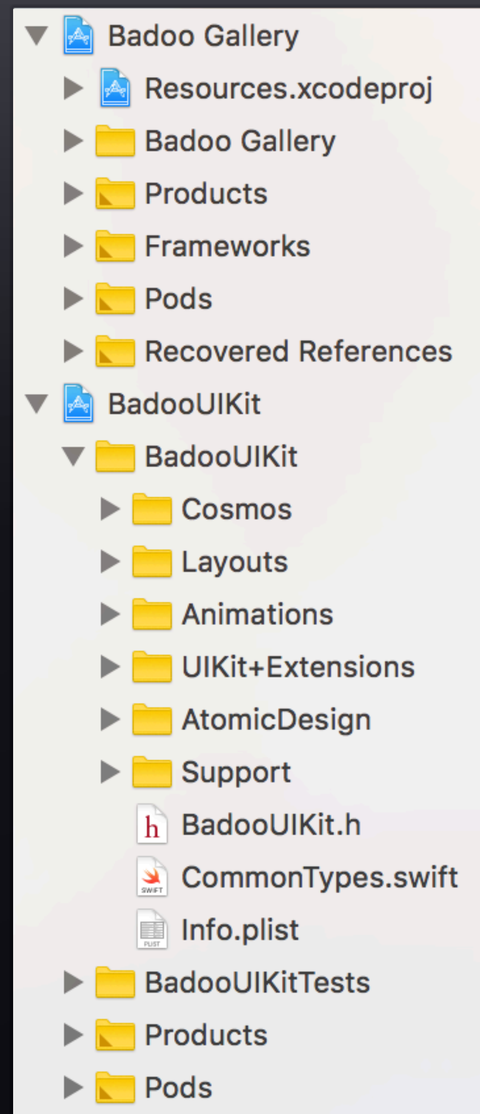
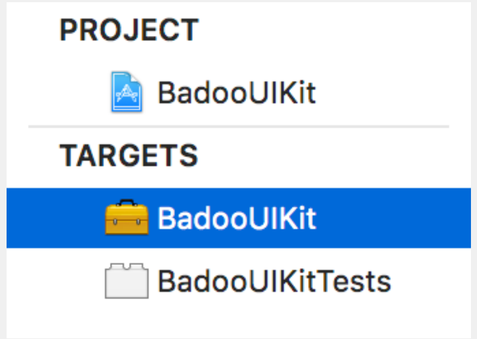
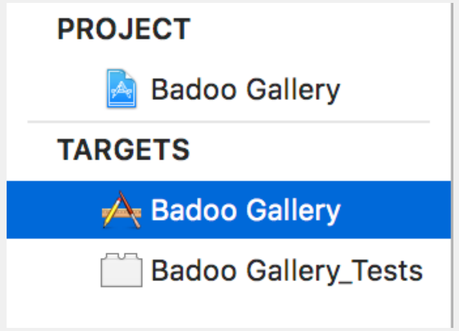


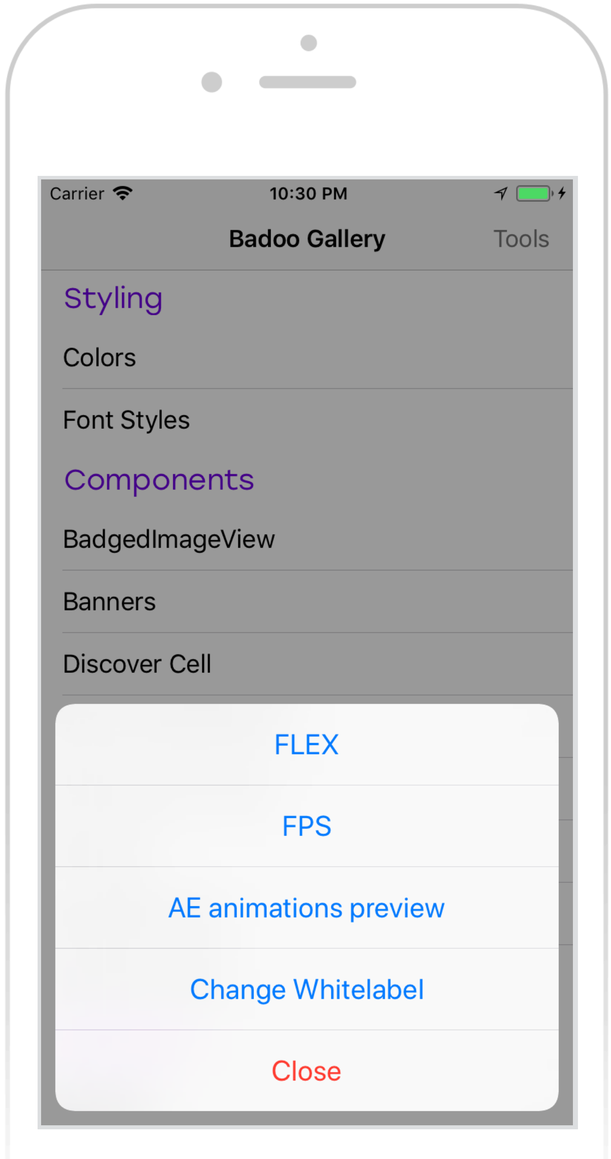


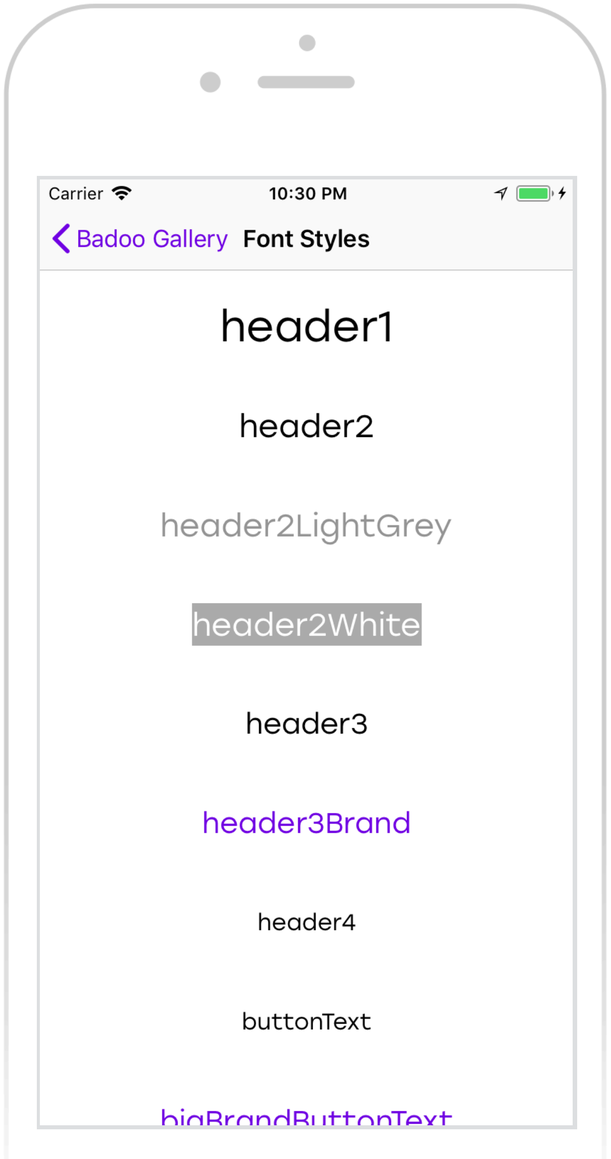
- BadooUIKit
  - Фреймворк визуальных компонентов
- Badoo Gallery
  - Демо-приложение с ресурсами

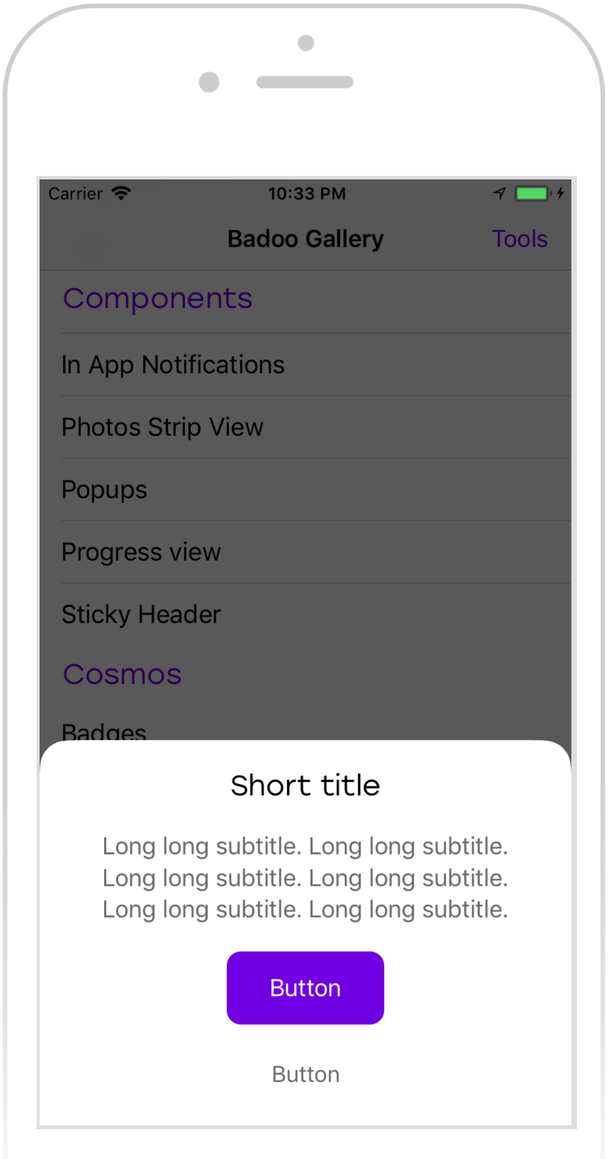


Badoo Gallery

badoo_tech







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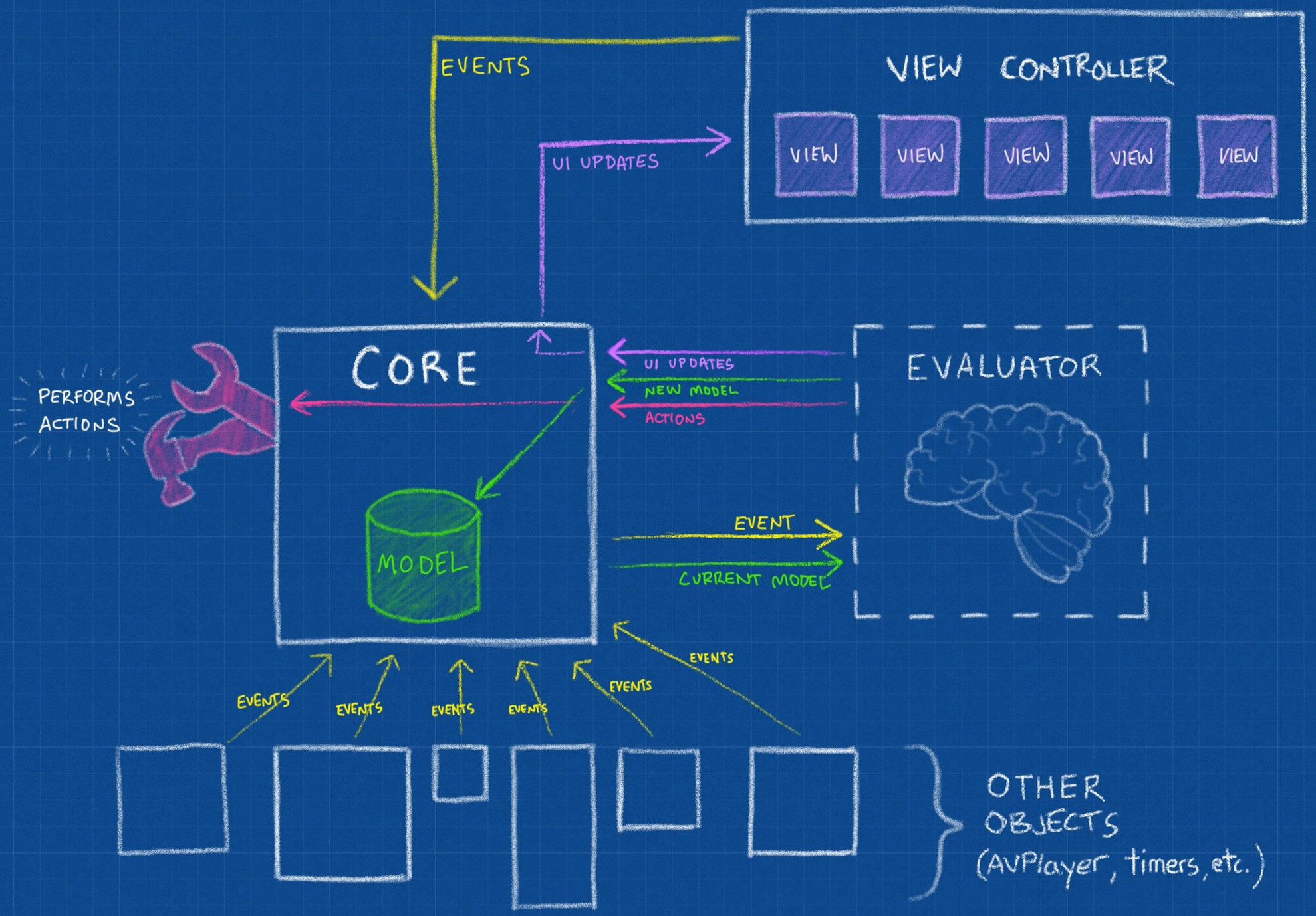
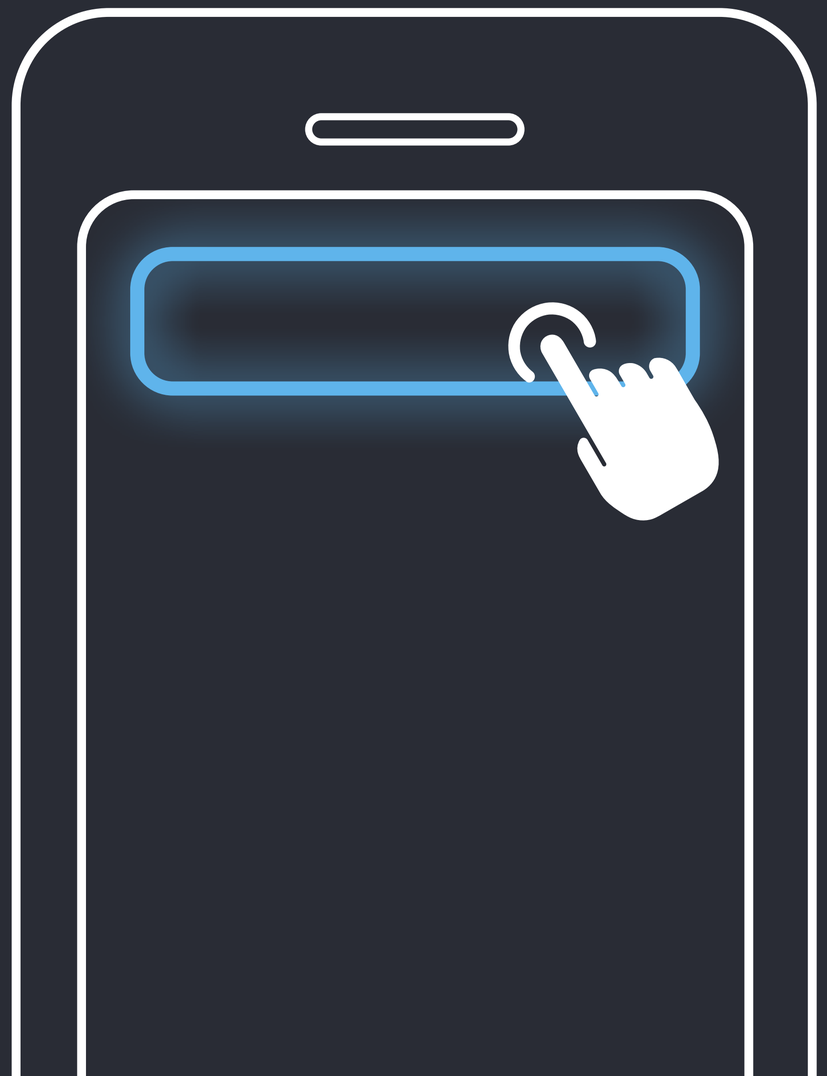
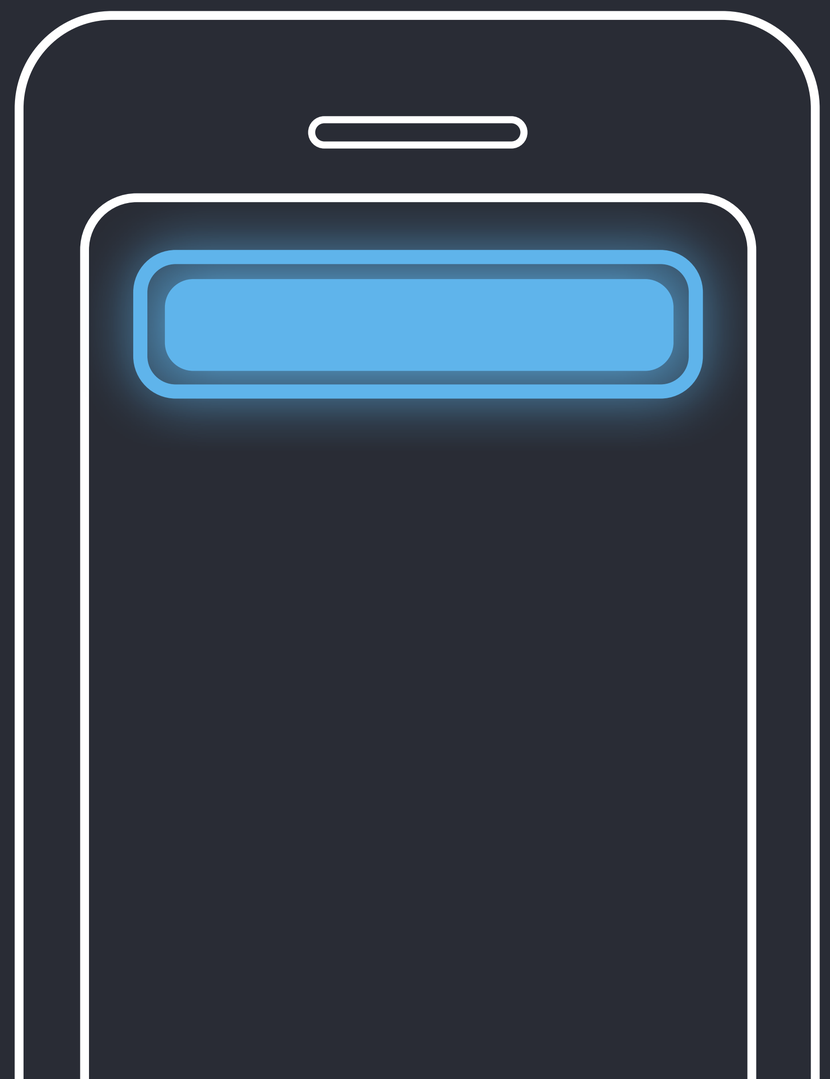
Акт 2 Часть 2

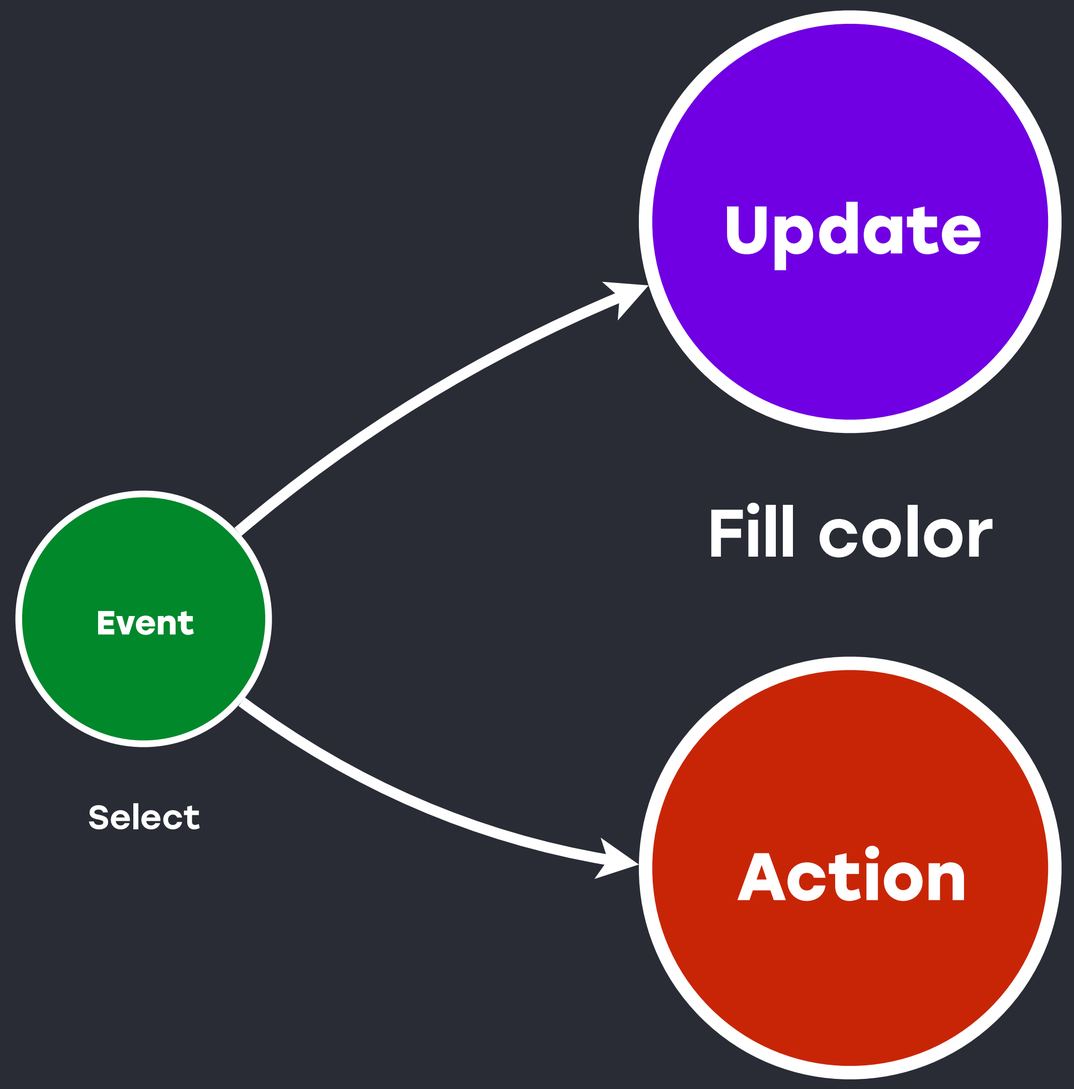
Event Update Action


EVENTS
VIEW CONTROLLER
VIEW
VIEW
VIEW
VIEW
VIEW
UI UPDATES
CORE
PERFORMS ACTIONS
MODEL
UI UPDATES
NEW MODEL
ACTIONS
EVALUATOR
EVENT
CURRENT MODEL
EVENTS
EVENTS
EVENTS
EVENTS
EVENTS
EVENTS
OTHER OBJECTS
(AVPlayer, timers, etc.)



Select

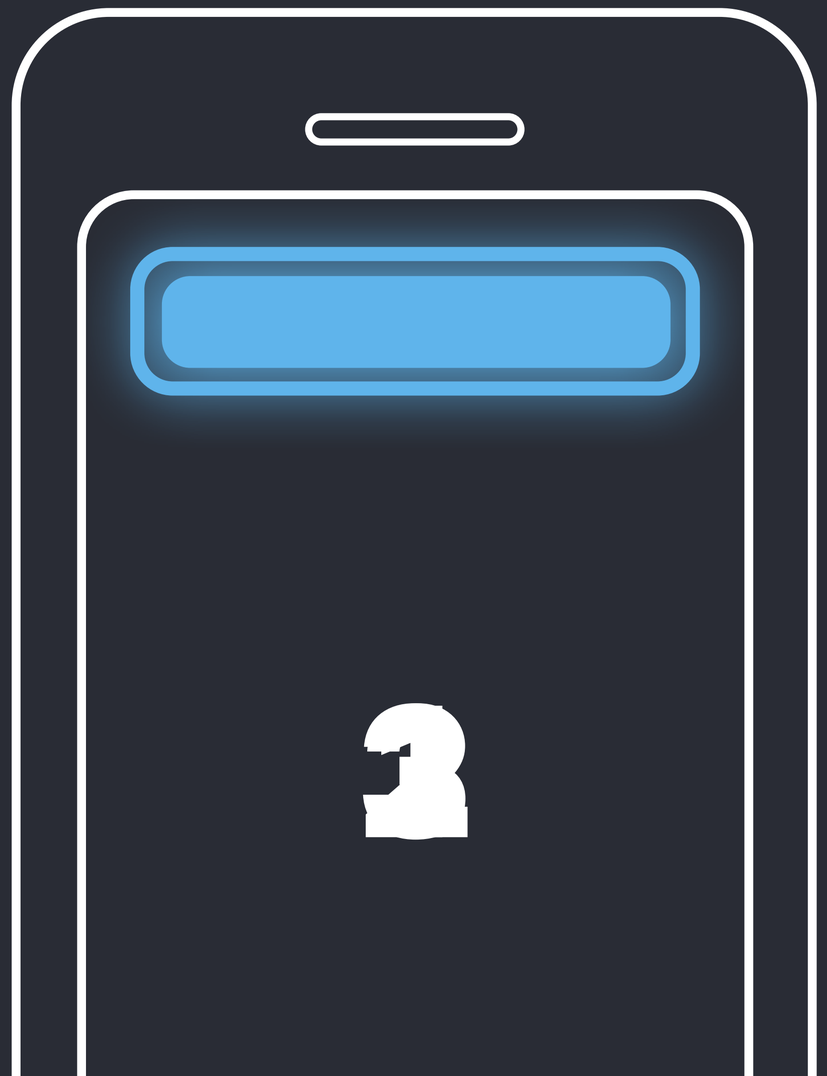


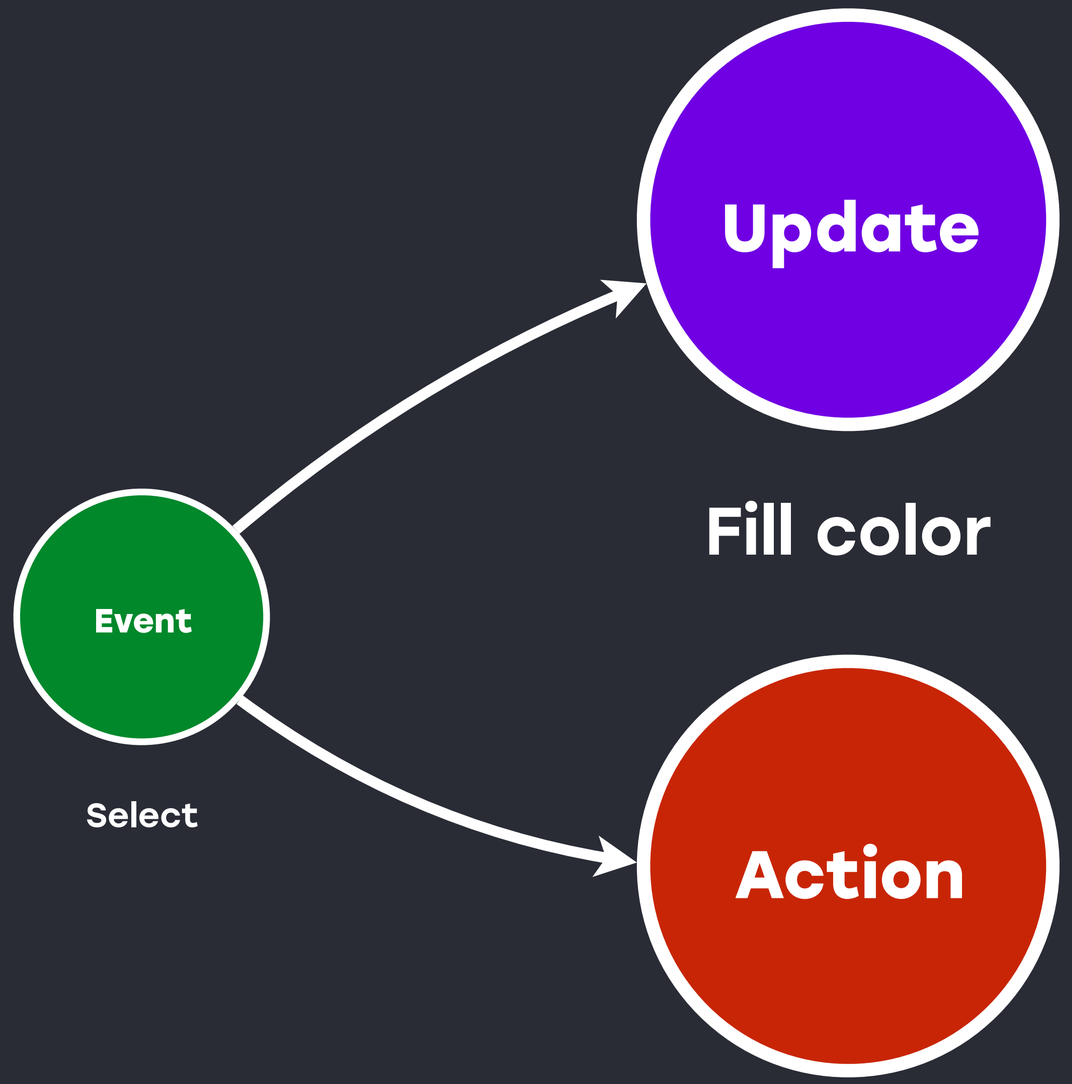


Fill color

Select

Schedule unselect timer





Fill color

Schedule unselect timer

EUA

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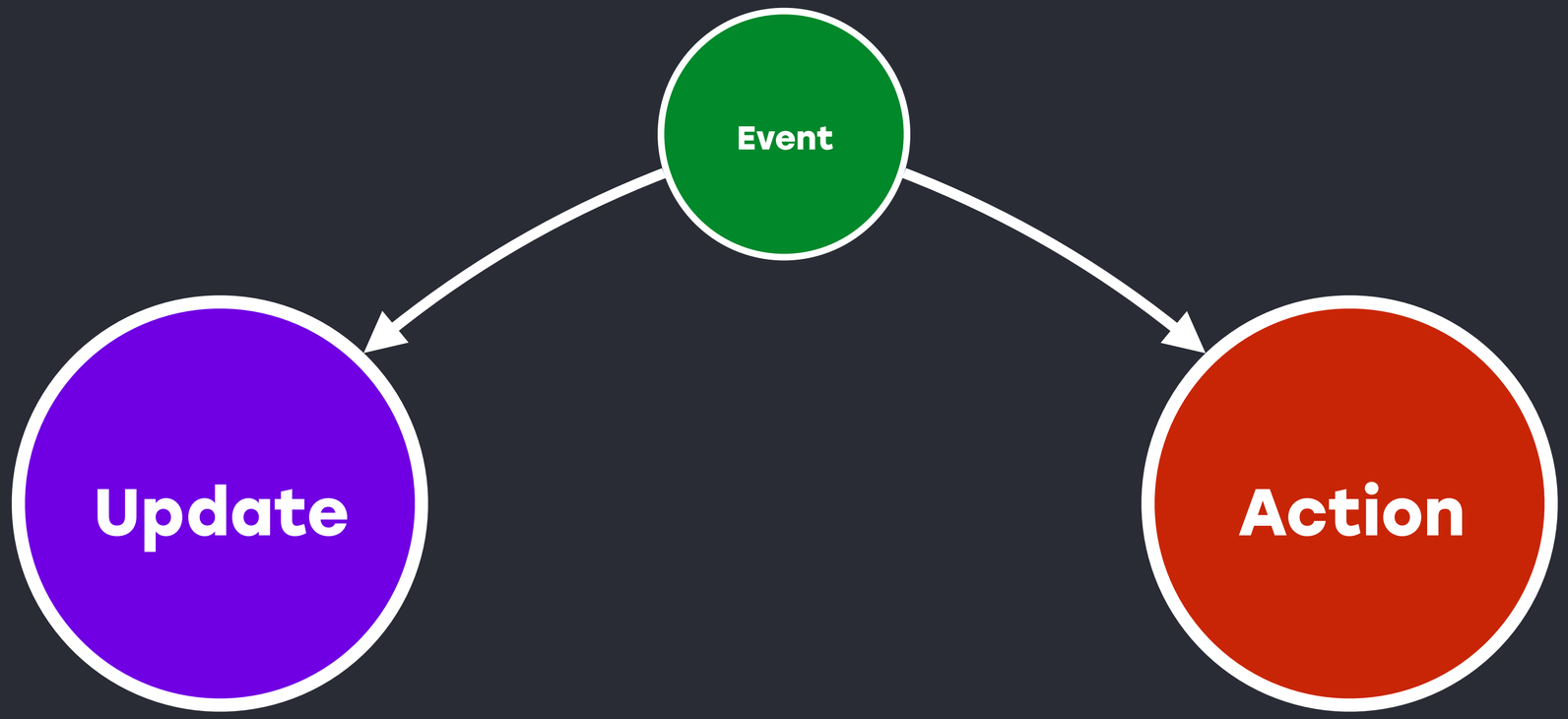

- Визуальное обновление
- Почти всегда вызывается на самом View

- Вызов определенной функции
- Может происходить на других компонентах

```
protocol StatableView {
    associatedtype Event
    associatedtype Update
    associatedtype Action

    func evaluate(event: Event) -> Result<Update, Action>
    func apply(update: Update)
    func perfom(action: Action)
}
```

```swift
protocol StatableView {
    associatedtype Event
    associatedtype Update
    associatedtype Action

    func evaluate(event: Event) -> Result<Update, Action>
    func apply(update: Update)
    func perfom(action: Action)
}

struct Result<Update, Action> {
    let updates: [Update]
    let actions: [Action]
}
```

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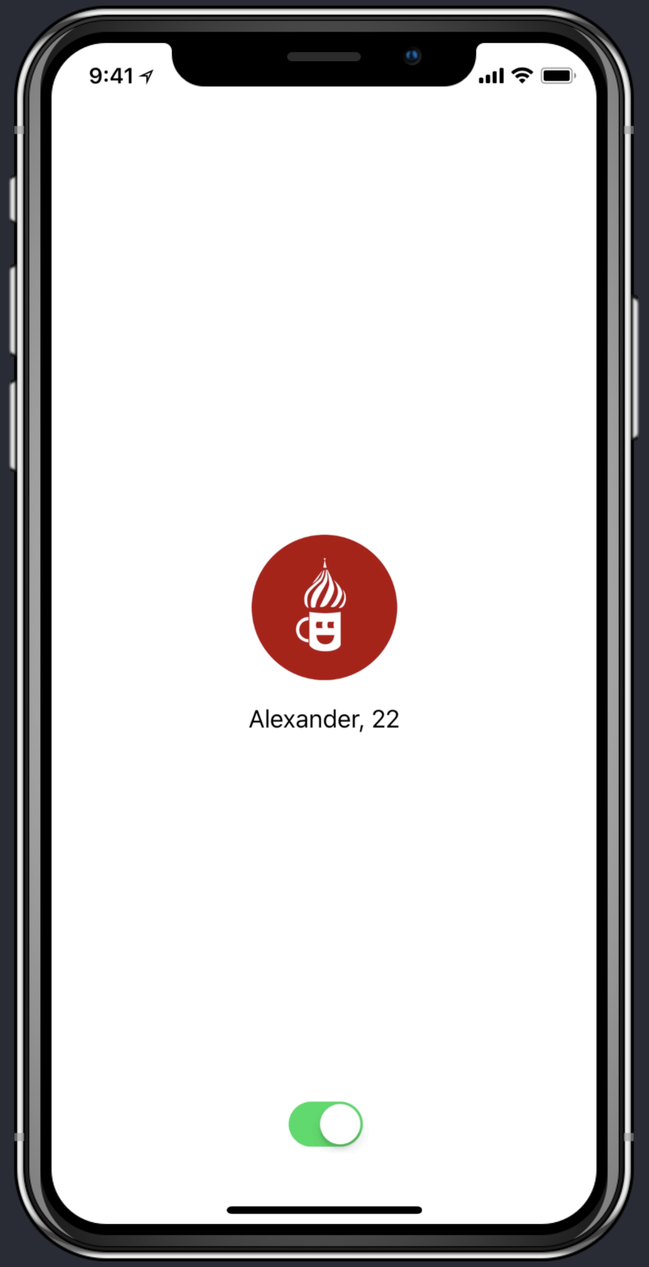
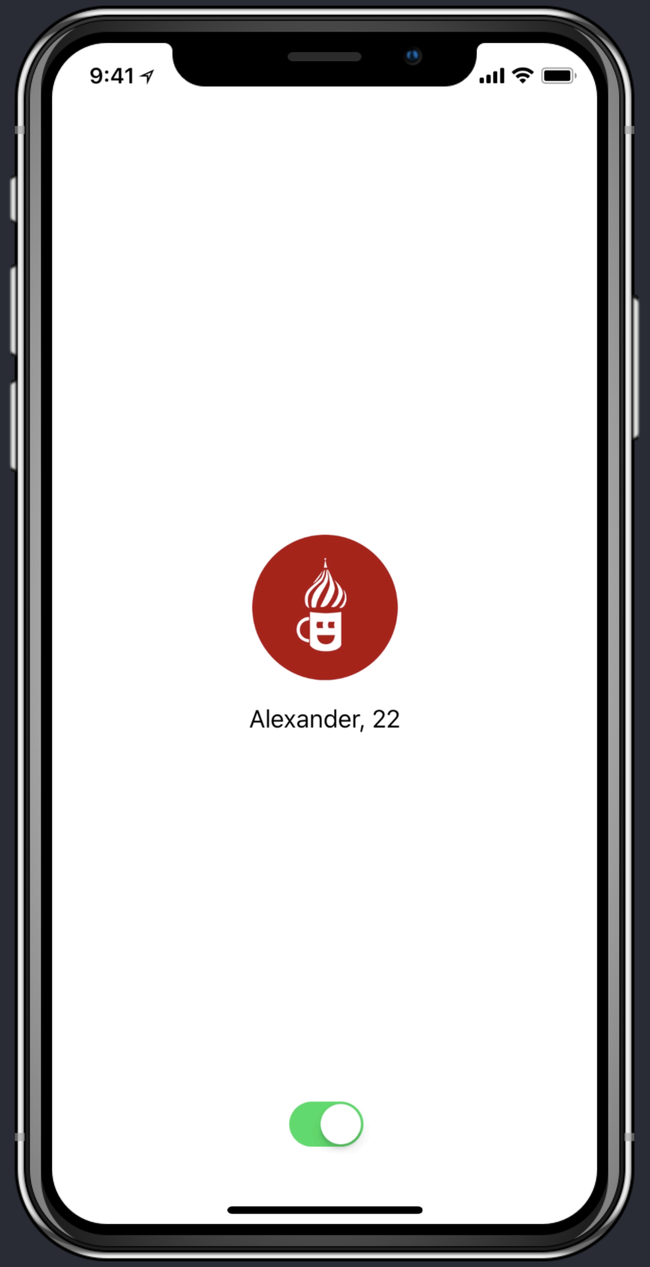
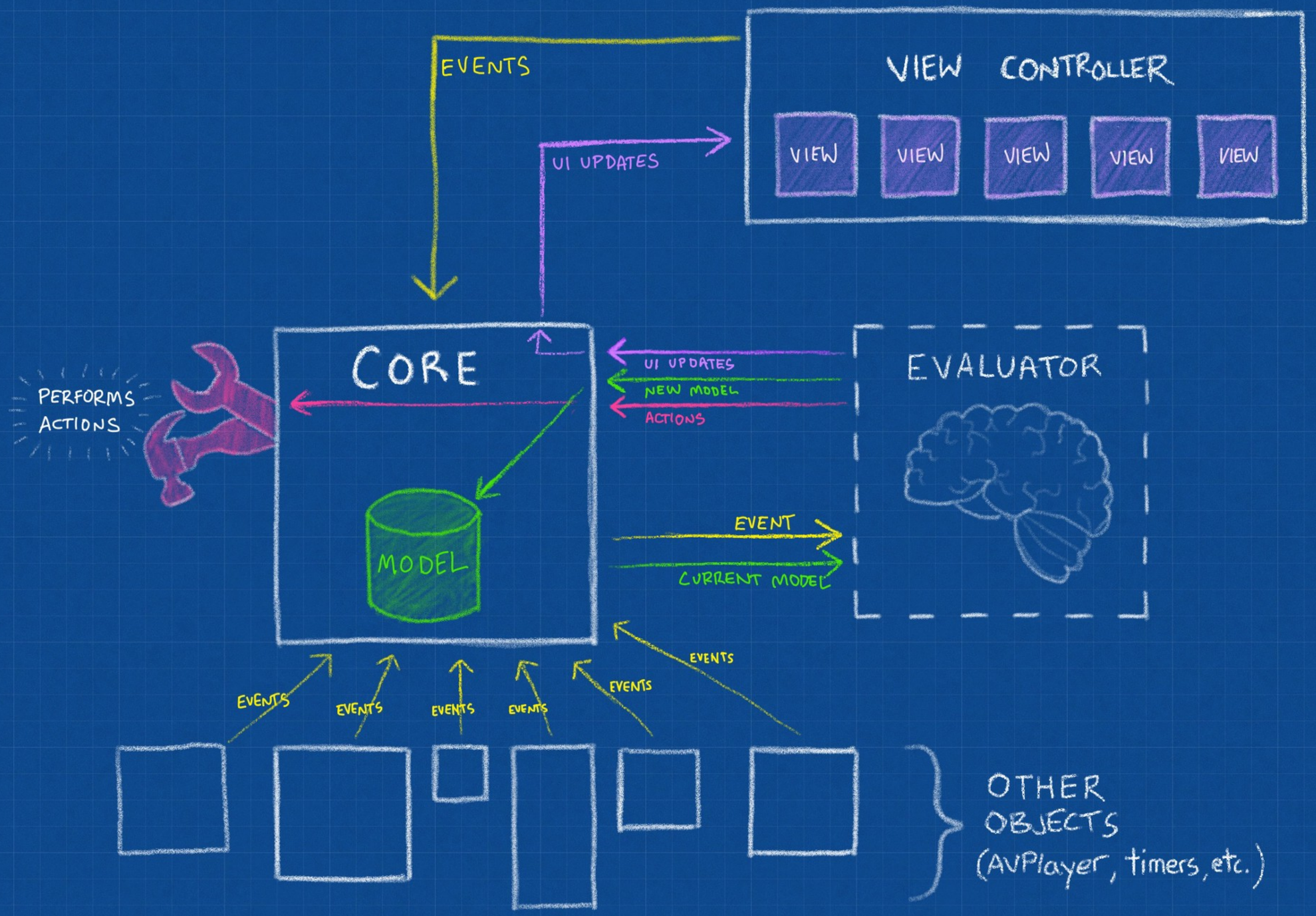




- Events:
  - Portrait mode
  - Landscape mode
- Updates:
  - Change stack view axis
  - Blink avatar
- No actions

```
extension ProfileView {
    enum Event {
        case enterPortraitMode(duration: CGFloat)
        case enterLandscapeMode(duration: CGFloat)
    }

    enum Update {
        ...
    }

    enum Action { }
}
```

```
extension ProfileView {
    enum Event {
        ...
    }

    enum Update {
        case changeAxis(duration: CGFloat, axis: UILayoutConstraintAxis)
        case avatarBlink(duration: CGFloat)
    }

    enum Action { }
}
```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VIEW CONTROLLER
VIEW
VIEW
VIEW
VIEW
VIEW
UI UPDATES
CORE
PERFORMS ACTIONS
MODEL
UI UPDATES
NEW MODEL
ACTIONS
EVALUATOR
EVENT
CURRENT MODEL
EVENTS
EVENTS
EVENTS
EVENTS
EVENTS
EVENTS
OTHER OBJECTS
(AVPlayer, timers, etc.)

Акт 2 Часть 3

Visual Regression Testing

Задачи

- Подход
- Тестовые данные
- Тестируемые состояния
- Читаемые тесты
- Хранение изображений
- Работа с падающими тестами

Существует всего одна библиотека

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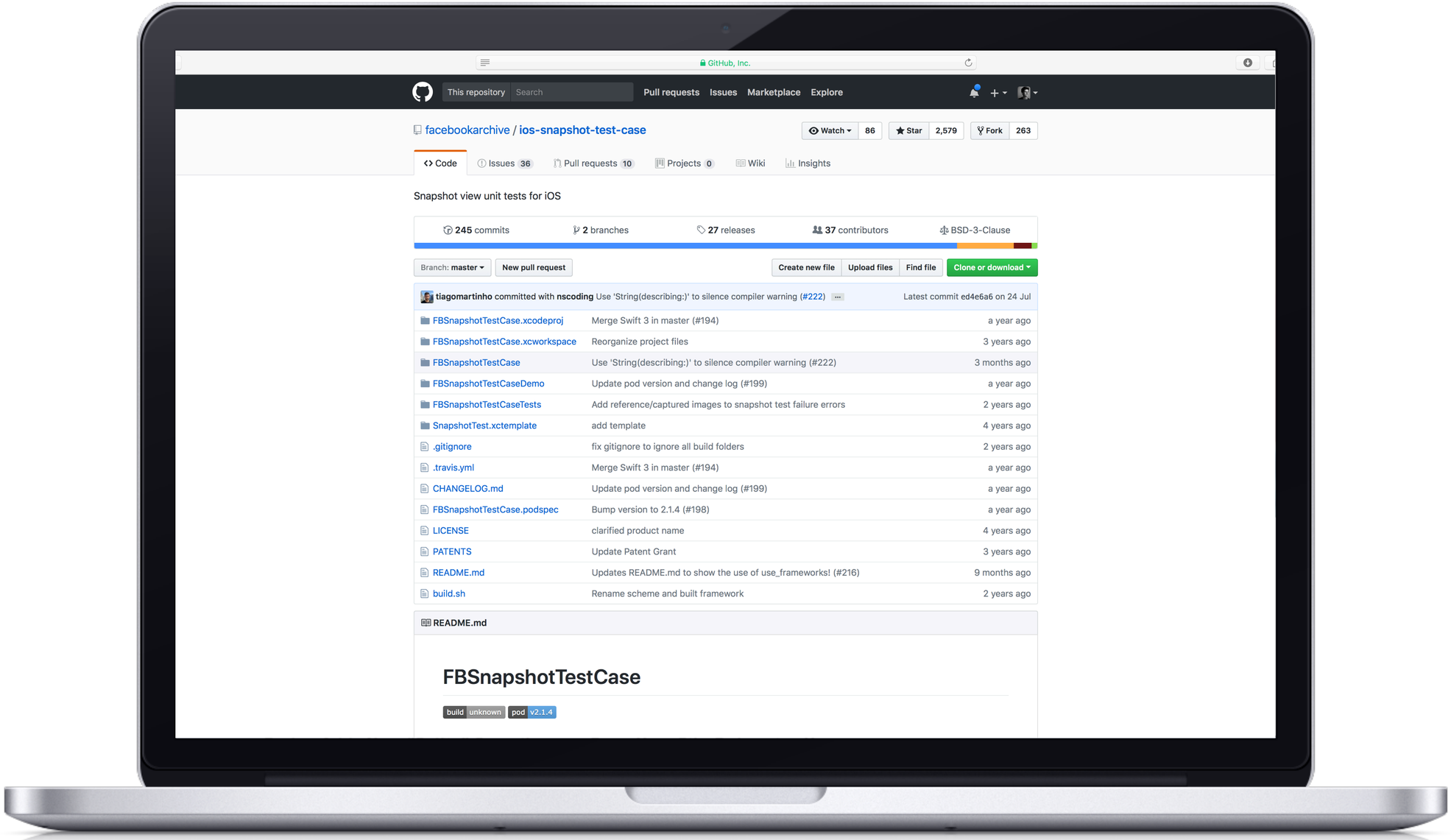

Да и с ней есть проблема

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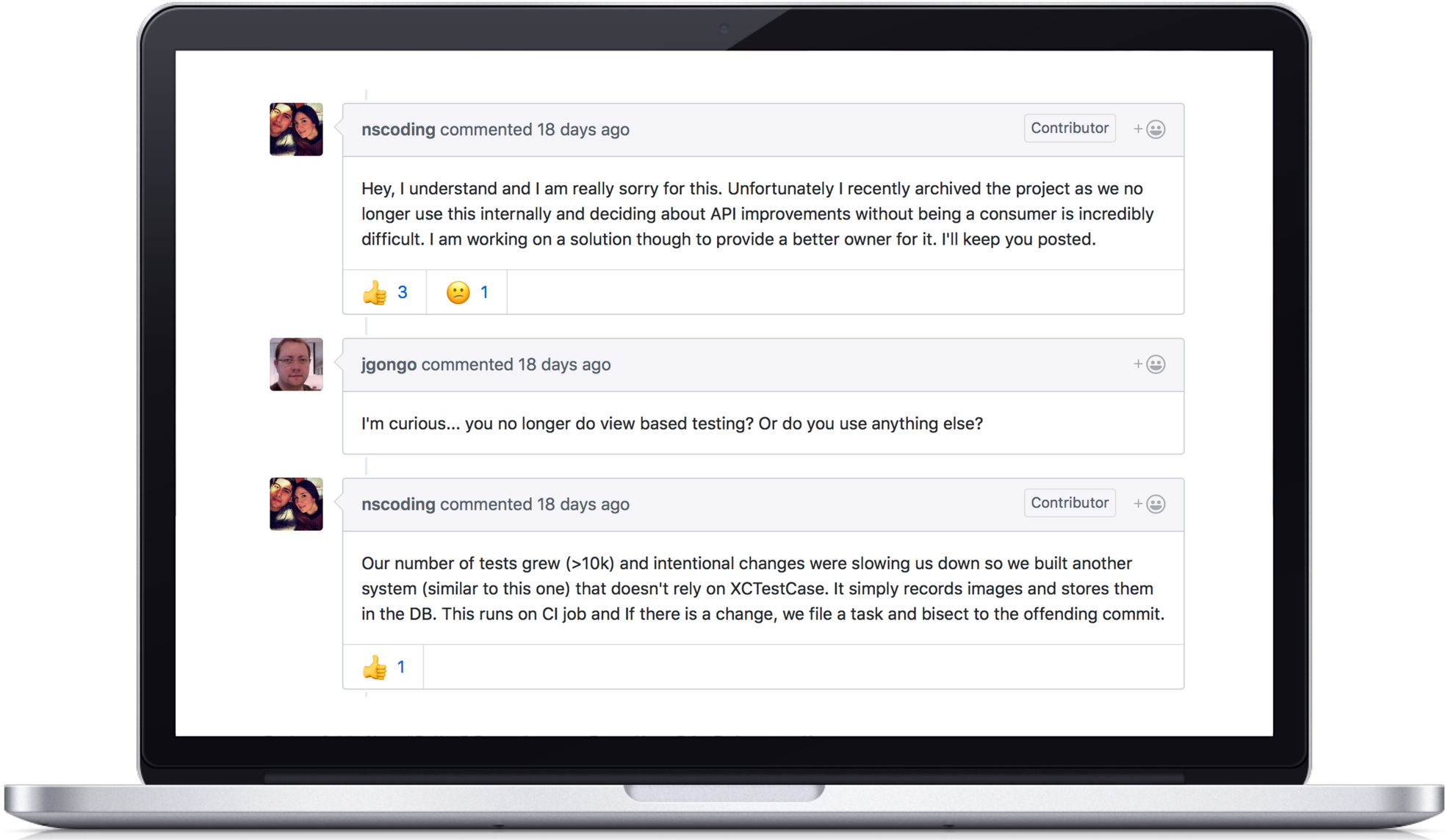

XCTestCase

```
class ProfileViewTests: FBSnapshotTestCase {

    func testProfileView_AlignHorizontally() {
        recordMode = true

        let profileViewModel = FakeProfileViewModel()
        let profileView = ProfileView(viewModel: profileViewModel)

        FBSnapshotVerifyView(profileView)
    }

}
```

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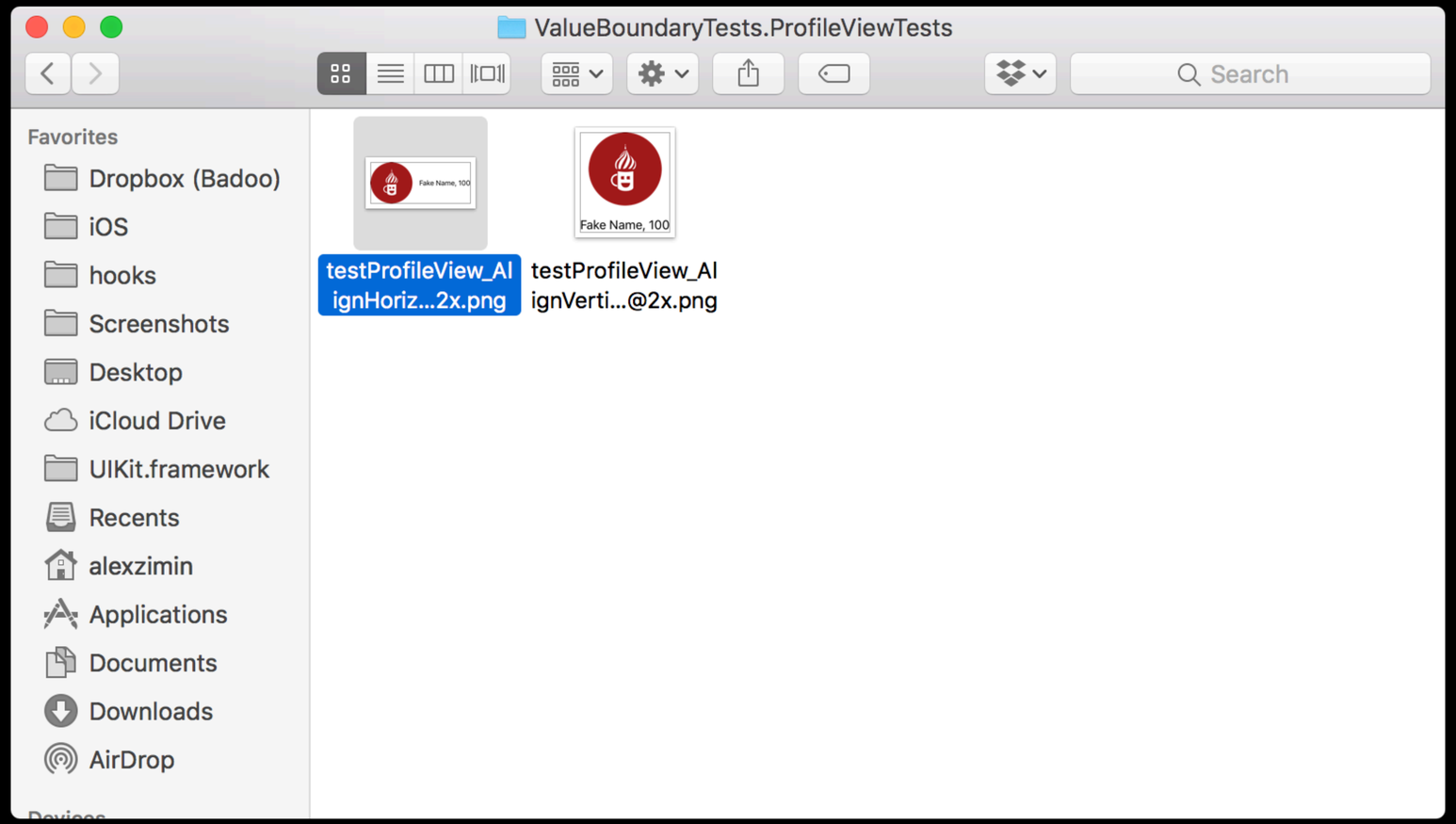

ValueBoundaryTests.ProfileViewTests
Search
Favorites
Dropbox (Badoo)
iOS
hooks
Screenshots
Desktop
iCloud Drive
UIKit.framework
Recents
alexzimin
Applications
Documents
Downloads
AirDrop
Fake Name, 100
testProfileView_AlignHoriz...2x.png
testProfileView_AlignVerti...@2x.png

```
titleLabel.font = UIFont.systemFont(ofSize: 19)
titleLabel.textColor = UIColor.red
```

ValueBoundaryTests 2 issues

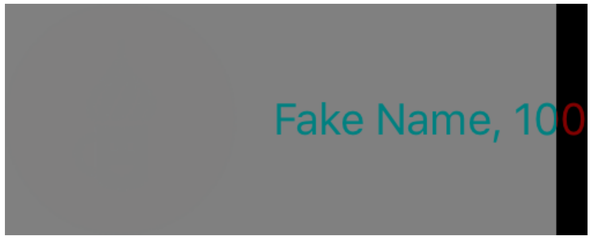
AvatarViewTests.testAvatarView_Appe...

failed - Snapshot comparison failed: Optional(Error Domain=FBSnapshot TestControllerErrorDomain Code=3...
AvatarViewTests.swift

failed - Snapshot comparison failed: Optional(Error Domain=FBSnapshot TestControllerErrorDomain Code=1...
AvatarViewTests.swift

Fake Name, 100

Fake Name, 100



Fake Name, 100

Fake Name, 100

Низкоуровневый компонент

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```
protocol FooViewModelProtocol {
    var backgroundColor: UIColor { get }
}
```

```
class FooView: UIView {
    func setup(viewModel: FooViewModelProtocol) {
        self.backgroundColor = viewModel.backgroundColor
    }
}
```

```swift
struct FooViewModel: FooViewModelProtocol {
    var backgroundColor: UIColor
}

struct FakeFooViewModel: FooViewModelProtocol {
    var backgroundColor: UIColor {
        return UIColor.red
    }
}
```

Компоненты более высоких уровней

badoo_tech

Fake Name, 100

```
protocol FooComplexViewModelProtocol {
    var viewModel1: FooViewModelProtocol { get }
    var viewModel2: FooViewModelProtocol { get }
}
```

```
class FooComplexView: UIView {
    var fooView1: FooView!
    var fooView2: FooView!

    func setup(viewModel: FooComplexViewModelProtocol) {
        fooView1.setup(viewModel: viewModel.viewModel1)
        fooView2.setup(viewModel: viewModel.viewModel2)
    }
}
```

```
protocol FooComplexViewModelProtocol {
    var sharedBackgroundColor: UIColor { get }
}
```

```
class FooComplexView: UIView {
    var fooView1: FooView!
    var fooView2: FooView!

    func setup(viewModel: FooComplexViewModelProtocol) {
        let realFooViewModel = FooViewModel(backgroundColor:
viewModel.sharedBackgroundColor)
        fooView1.setup(viewModel: realFooViewModel)
        fooView2.setup(viewModel: realFooViewModel)
    }
}
```

Эпилог

Что мы имеем

Итоги

- **BadooUIKit** для разработки визуальных компонентов
  - Быстрая компиляция
  - Концепты Atomic Design, что позволяет вносить изменения в одном месте
  - EUA для более точных состояний
- **Badoo Gallery** для демонстрации визуальных компонентов
  - Визуальное снапшот-тестирование для поиска регрессий

- Atomic Design Book – http://atomicdesign.bradfrost.com
- Event Update Action – https://medium.com/bpxl-craft/the-value-is-the-boundary-7c4d65322896
- Badoo Styleguide – https://m.badoo.com/styleguide
- From zero to Cosmos – https://speakerdeck.com/didoo/from-zero-to-cosmos
- FBSnapshotTestCase – https://github.com/facebookarchive/ios-snapshot-test-case
- Sketch + Atomic Design – https://medium.com/re-write/the-unicorn-workflow-design-to-code-with-atomic-design-principles-and-sketch-8b0fe7d05a37
- Sketch + Libraries – https://medium.com/ux-power-tools/sketch-libraries-how-they-work-and-the-crazy-stuff-you-can-do-with-them-fc10f142ac80

https://github.com/azimin/Mobius-Demo

https://twitter.com/ziminalex

Спасибо!

Давайте делать лучшие приложения вместе

badoo

badoo tech